THE MARINE REVIEW

VOL. 40. CLEVELAND, JUNE, 1910. NEW YORK No. 6

Commencement Bay, the Harbor of Tacoma*

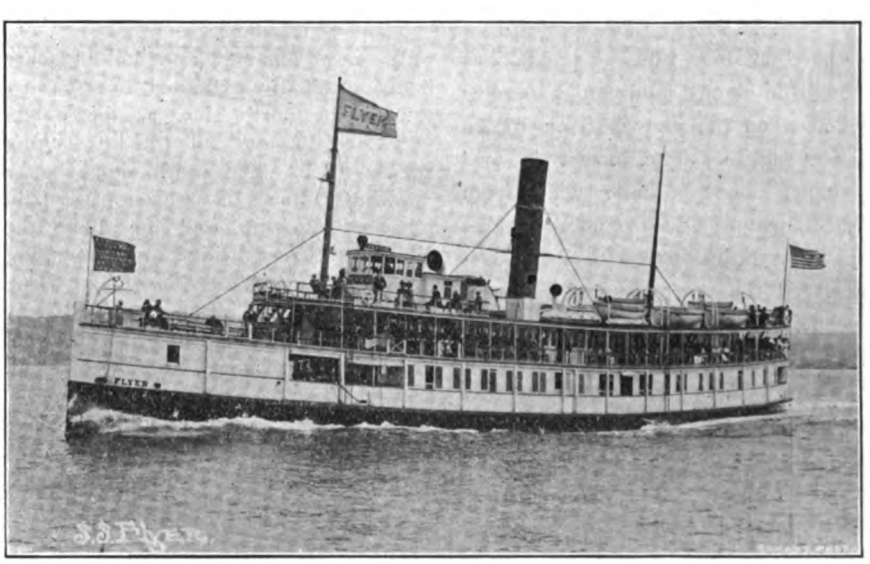
By Louis P. Zimmerman.

COMMENCEMENT Bay, the harbor of Tacoma, is located at the extreme south end of Puget Sound, the largest harbor on the north Pacific coast. To some extent, the whole of Puget Sound contributes to the harbor facilities of Tacoma. All of the general conditions of winds, tides, climate, and protection described in THE MARINE REVIEW of July, 1909, in regard to the harbor of Seattle, apply to Commencement Bay. The whole shore line of Puget Sound is indented with numerous bays and inlets, offering protection and shelter at all times. At any point there is sufficient depth of water to accommodate the largest vessels afloat at all stages and conditions of tide. While large lumber schooners do occasionally sail down Puget Sound, most of the sail tonnage is towed into port. The towing charges vary from $105 for a 250-ton vessel to $325 for a 1,500-ton vessel towed between Cape Flattery and Tacoma.

The six requisites for a good harbor are summed up in: 1, protection from storms; 2, ample depth and good anchorage; 3, size; 4, accessibility; 5, sufficient shore line for the construction of the necessary docks and wharves, and 6, facilities for handling freight and for the repair of vessels.

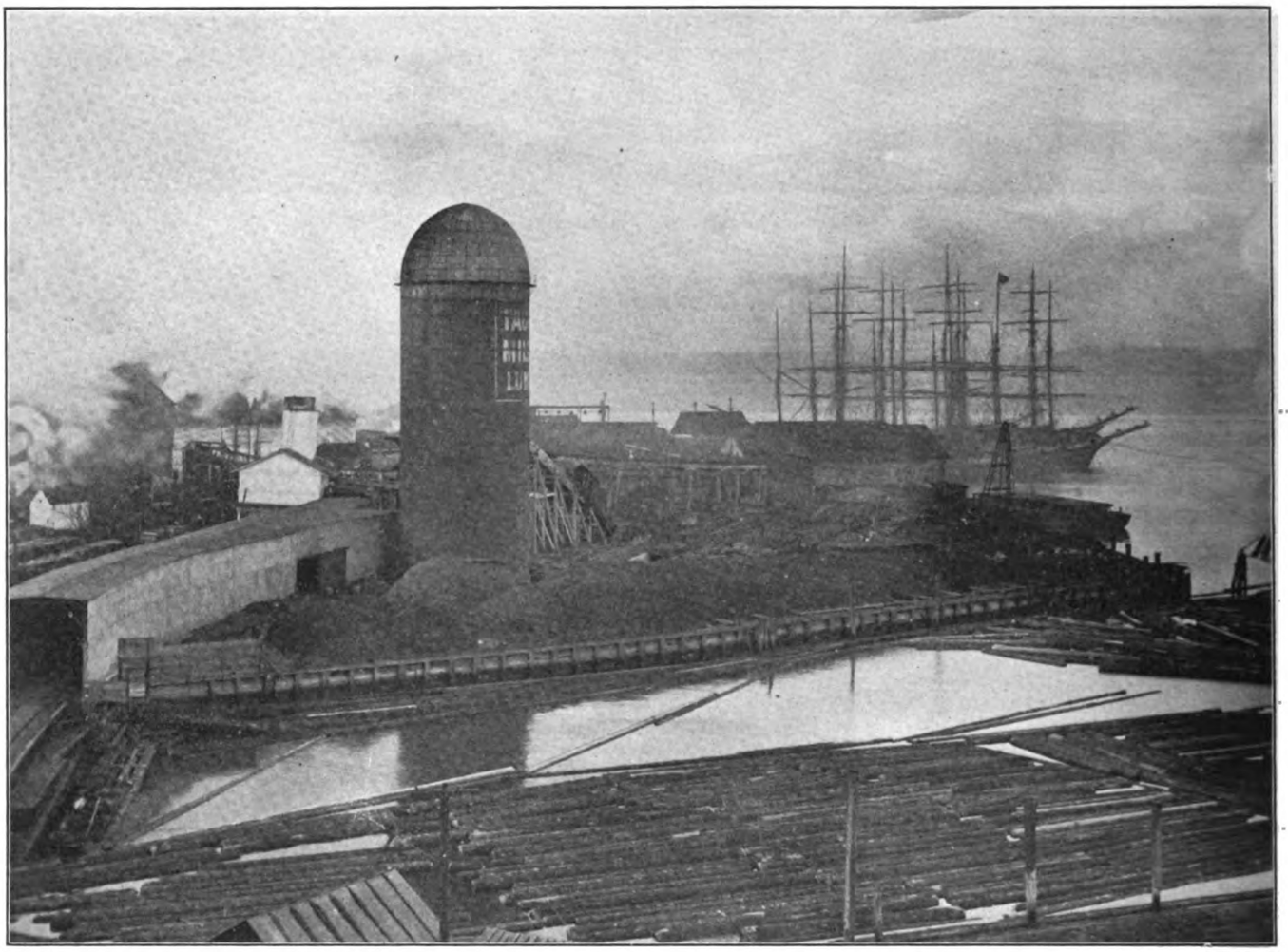
*Fifth of a series of articles describing the principal harbors of the Pacific coast. Other articles have been published as follows: Portland, Ore., May, 1909; Seattle, Wash., July, 1909; Victoria and Vancouver, B. C., October, 1909; San Francisco, Cal., February, 1910.

Natural conditions combine to make Tacoma one of the large shipping centers. Two things besides natural contour are necessary to bring immense quantities of staple commodities together at Tacoma. There are, briefly, four cities on the northern half of Puget Sound that may be mentioned as having large, deep harbors: viz., Port Townsend, Bellingham, Everett and Seattle. At the extreme south is Tacoma. The vital factor in the growth of all of these towns is their railroad haul, for in all the cities on the sound, rail must meet sail to have a continued natural growth. For many years past, the shortest distance for rail to meet sail was through Seattle. With the completion of the water grade line of the Spokane, Portland & Seattle and the Chicago, Milwaukee & Puget Sound, Tacoma is competing on even terms. Nearly all of the waters of Puget Sound are bordered by high, bluffy hills with water at their very foot several hundred feet deep, with no place for a city except on the tops of the plateaus. In a few places, at the mouths of rivers flowing into the salt water, are low flat areas, shallows, or tide flats, covered with water at high tide



INDIANAPOLIS, PASSENGER STEAMER, PLYING BETWEEN TACOMA AND SEATTLE.

Generated on 2024-07-25 20:36 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY



TACOMA MILL CO.'S PLANT—ONE OF THE OLDEST MILLS IN TACOMA, ESTABLISHED IN 1868, KNOWN AS "OLD TOWN MILL."

and bare at low tide. Tacoma has ample tide lands and an extensive level area on the plateau from 100 to 300 feet above. The harbor is oval in shape, about a mile wide from Point Brown to Old Tacoma, and five miles from Point Brown to Point Defiance. At the southeast end of Commencement Bay, the mud flats extend entirely across. These flats, in their original condition, were bare at low tide and covered with water at high tide. Emptying into them are two creeks and the Puyallup river, having a depth varying from a few feet to 30 or 40 feet. Tacoma has 17½ miles of waterfront, 14 miles of which are in the city limits and three and one-half outside. Of the 14 miles in the city limits, six and one-half are unoccupied. Channels and waterways are being dug through the mud flats, which will have a total of 35 miles of waterfront suitable for wharves.

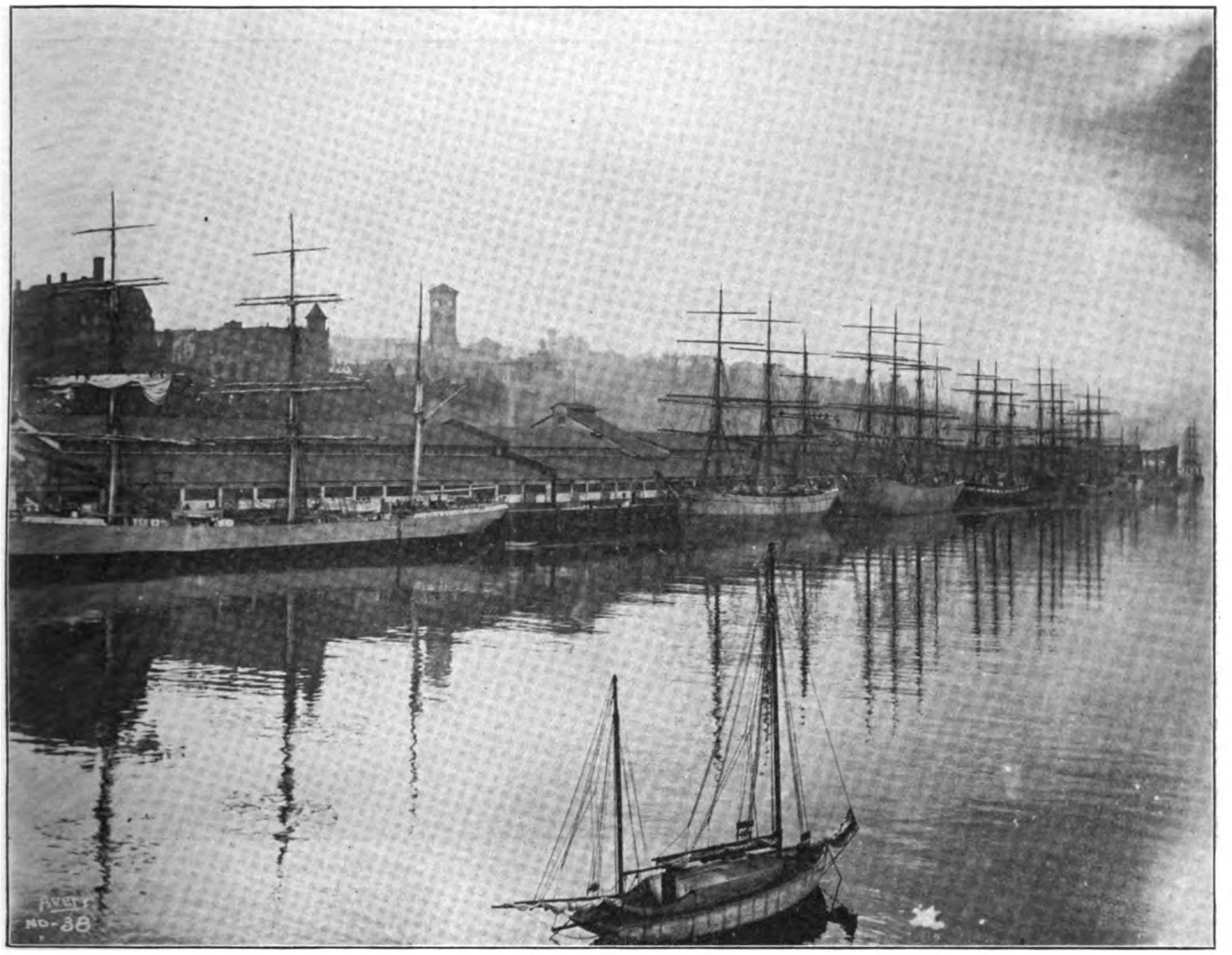
The south side of the bay has been built up first, being at present the only one. Wharves and buildings are being gradually extended over across toward the north side, as the waterways are dug out and the intervening spaces filled. The south shore has a continual line of warehouses and wharves, starting well up above the Eleventh Street bridge and extending down toward Old Tacoma. Deep water is found almost immediately below the wharves, a depth of 25 to 40 ft. obtaining along the waterfront. Out in the bay proper, a depth of 20 to 90 fathoms is common. The average mean difference between high water and low water is 8.2 ft. and between high tide and low tide, 14.4 ft., giving a mean average tide of from 8 to 11 ft. Being protected by bluffs, the harbor is safe at all times for ships of any size, and only in rare cases is there danger to small launches. Favored with a natural harbor of good depth, well protected, accessible and large enough to accommodate vessels of all kinds and having the means of extensively increasing their building location for wharves and docks, it is in order to consider what has been done and what can be done to further use and develop the natural conditions.

In 1868, a small schooner, loaded with lumber from old Hansen's mill, sailed for San Francisco. This was the beginning of ocean commerce from Tacoma. Up to 1890 it amounted to very little, but in the last 15 years with the development of the west, the ocean commerce has grown to $40,657,029 in 1909.

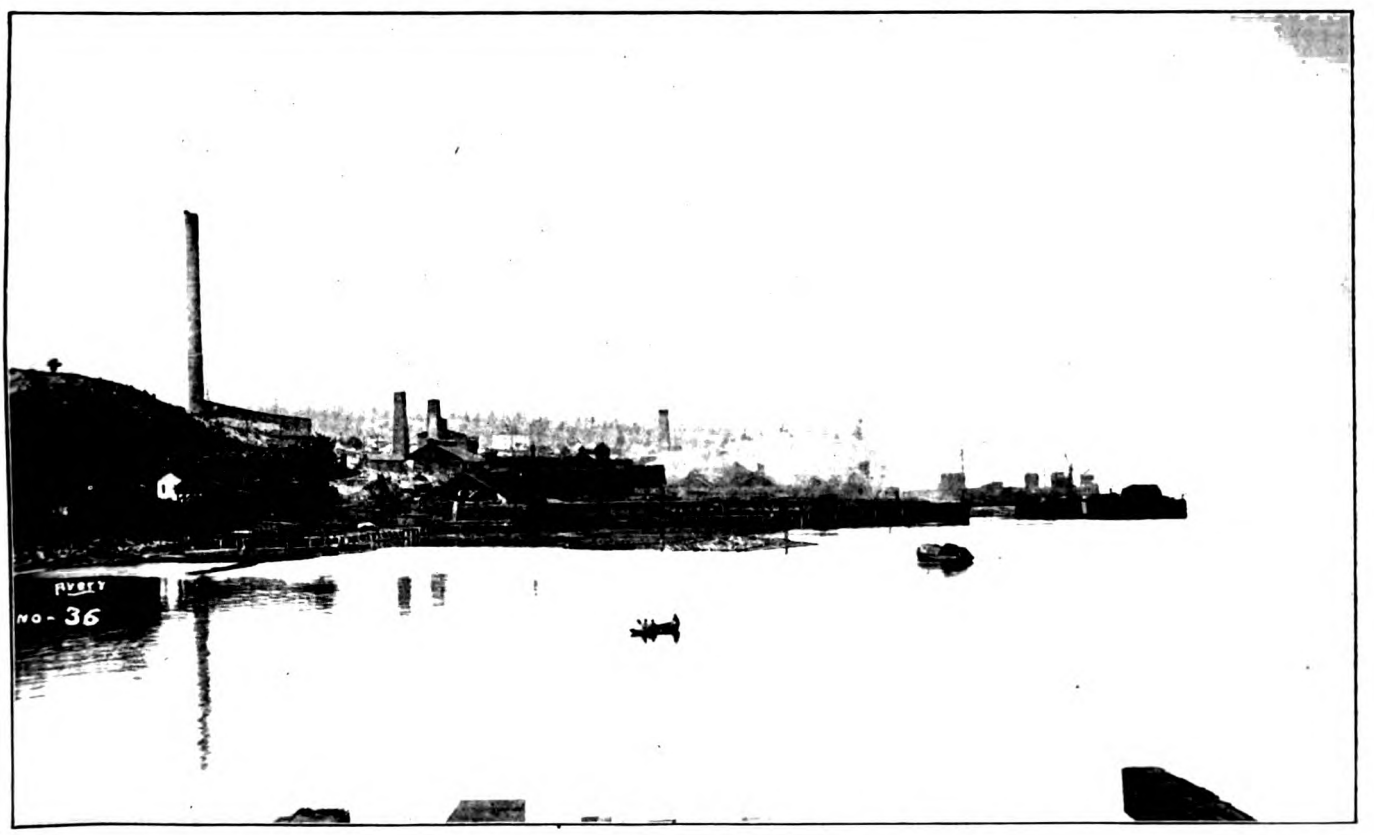
More than half the wheat and flour going to Europe leave Tacoma, the three great items of export being wheat, flour and lumber. One of the largest wheat warehouses in the world, measuring 2,360 ft. in length, 147 ft. in width, with a capacity of 2,000,000 bushels of grain, is found on the waterway. Among the docks in the city are:

	Length. Feet.	Capacity. Tons.
Commercial dock	400	15,000
Eureka dock	400	15,000
Transioli dock	100	5,000
London dock	300	12,000
N. W. Warehouse Co.....	300	15,000
J. B. Stevens dock	500	25 000

Generated on 2024-07-25 20:36 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY



SAIL VESSELS LOADING WHEAT AT THE WAREHOUSES AT TACOMA—A TYPICAL SCENE.



SHOWING WHARVES AND WATER FRONT OF TACOMA SMELTER.

Generated on 2024-07-25 20:36 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

GENERAL VIEW OF ST. PAUL & TACOMA LUMBER CO.'S MILLS LOOKING TOWARDS THE BAY.

The Belfour-Guthrie, Alaska Pacific and the Chicago, Milwaukee & St. Paul complete the list. The Milwaukee has done what must be done eventually to the whole mud flat district to make it available for shipping. The freight terminal facilities of the Milwaukee on the Tacoma tideflats are unexcelled and cover 185 acres of water front, which is reached by a right-of-way two miles long. The land was filled in by dredging the waterway and carried 22 ft. above the waterway. The Milwaukee waterway is 275 ft. wide and adjoins the government waterway 500 ft. wide. Connecting with the waterfront terminal, tracks have been built back through the manufacturing and wholesale district. A car ferry is used to connect the terminal yards with the tracks near the smelter located farther down the south shore. Warehouses and docks costing half a million dollars have been built on the east side on th Milwaukee waterway fronting the inner harbor line. The grain warehouses are used by Balfour, Guthrie & Co. and have a floor capacity of 17,000 tons of wheat and an elevator storage of 100,000 bus. The double warehouse consists of two elevators 175 x 60 ft. by 100 feet high. The Milwaukee has car building and repair shops on the tide lands.

While wheat and flour rank first in total value of exports, the largest manufacturing industry for many years past has been lumber and shingles. Formerly every hamlet had its logging industry and saw mill, but increased facilities of transportation by land and water have concentrated the saw mill industry at points along Puget Sound. Tacoma is one of these saw mill centers.

The Old Town Mill was established in 1868 and has an annual output of 150,000,000 ft. of lumber. In 1888 was established the St. Paul & Tacoma Lumber Co., now the largest lumber manufacturing plant in the world. For 1909, its product was 115,000,000 ft. of lumber and 70,000,000 shingles valued at $2,500 000.

The exports of flour, wheat and lumber for 1909 and 1910 are:

	1909	1910.
Flour exports—		
Foreign	601,499 bbl.	556,970 bbl.
	$2,441,641	$2,350 833
Coastwise	159 067 bbl.	221,531 bbl.
	$650,404	$1,093,978
Wheat exports—		
Foreign	8,591,109 bu.	3 479,343 bu.
	$6,900,200	$3,221,965
Coastwise	955,328 bu.	1,577,769 bu.
	$1,225,316	$701,161
Lumber exports—		
Foreign	67,369 426 ft.	71,348,073 ft.
	$945,534	$963,905
Coastwise	46,429,154 ft.	75,138,315 ft.
	$542,448	$932,990
Exports, value ...	$24,428,846	$21,298,876
Imports, value ...	$18,926,456	$19,356,563

In 1890 the Tacoma or Ryan smelter was started by Mr. Rust and developed into the largest of its kind on the Pacific coast. Located on deep water, cheap transportation is provided for ore from along the coast, Alaska, British Columbia, South America and the Orient. Nearby are the coking coals in the Wilkeson and Fairfax districts, limestone is delivered in barges, ores are brought by railroads from mining districts of the interior, and Tacoma's location on deep water permits ovean going ships docking at the smelter's own wharves. The present plant's furnaces have a capacity of 1,000 tons of ore daily. During 1909 the smelter's output of gold, silver, copper and lead was $10,210,000. The Tacoma smelter has its own wharves and docks located on the south shore of Commencement Bay.

The question of available fuel both for manufacturing and future development in coaling vessels is vital. None of the Washington coal is as good as the fair grades of Pennsylvania bituminous coal, but there is a heavy and constantly increasing demand for it. Not only the quality, but the quantity

Generated on 2024-07-25 20:36 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

of the coal produced is dependent upon the folding and mechanical material mixed with the coal. Coal varies from a low grade of lignite to a fair grade of bituminous. In places there are found patches of so-called anthracite, which is similar in chemical analysis to Pennsylvania anthracite, but there is no comparison in efficiency of heating between the two. Chemical analyses which indicate high values in fixed carbon and low values in volatile matter are not safe guides for Washington coals. The status of coal development is far behind that of other natural resources. One of the large producing areas is located in Pierce county in the Wilkeson-Carbonado district, 30 miles south of Tacoma on the Northern Pacific railroad. The coal in this district is the best coking coal in Washington and supplies the Tacoma smelter. San Francisco and Hawaii were formerly markets for Washington coals, but of late, the industrial development has been such that much foreign coal has been imported, coming at a very low rate as ballast for the lumber and grain carriers, from Wales, Japan, Australia and British Columbia. At present the Northwestern Improvement Co. is mining about half the coal output, and the Northern Pacific railroad consumes the whole of its output. The Pacific Coast Coal Co. mines about 2 per cent, the major part of which is used by the liners of the Pacific Coast Steamship Co. At present the demand for coal exceeds the supply. The Washington coal is a good steam coal and is being used extensively on local boats.

COMPARISON OF WASHINGTON STEAM COAL WITH OTHER STANDARD COAL TESTS.

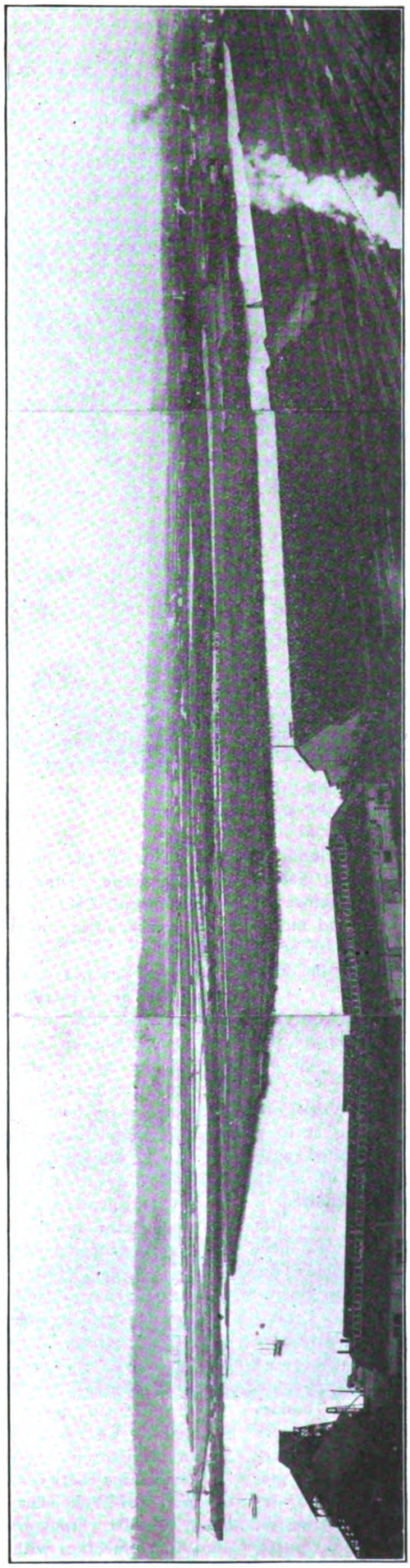
	Washington No. 2 steam.	Welsh.	Illinois (run of mine).	Pittsburg (fine slack).
Equivalent water evaporated per square foot of water heating surface	3.47	2.07	1.41	4.47
Water evaorated from and at 212° Fahr.—				
Per lb. coal	8.5	11.5	9.49	8.12
Per lb. combustible.	10.27	12.46	...	9.29

Analysis gives Washington coal:

	THE WHOLE.		Coal washed.	
	Seam.	Bone.	Only.	Coal.
Moisture	1.30	2.25	1.16	2.01
Volatile matter	17.17	12.92	21.31	19.23
Fixed carbon	65.97	57.89	71.40	69.42
Ash	15.56	26.94	6.13	9.34

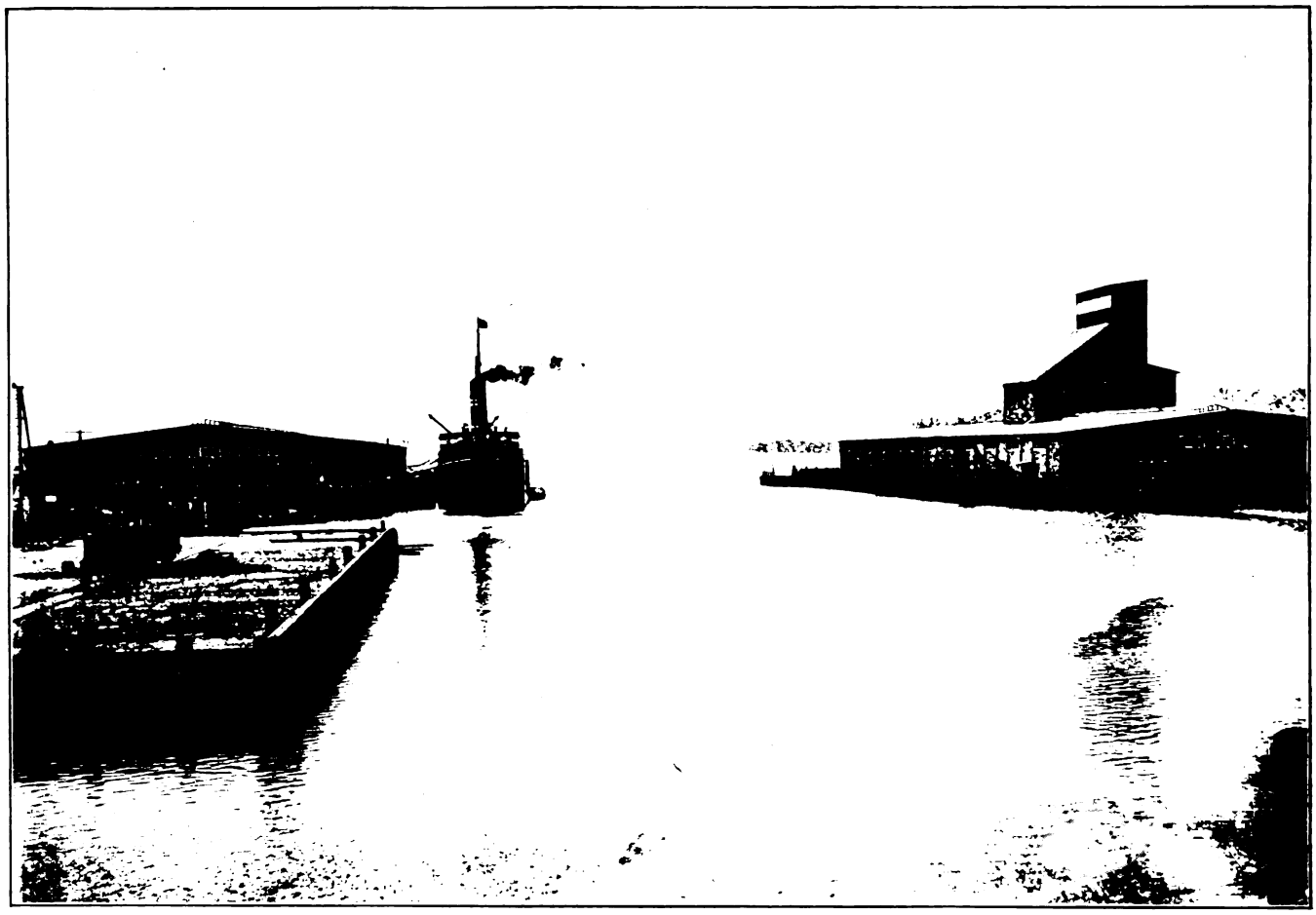
This question of coal is one which must be settled in the future to secure the rapid development of industrial plants.

The Puget Sound Iron & Steel Co.



GENERAL VIEW OF TACOMA HARBOR TAKEN FROM SOUTH SIDE, SHOWING THE TIDE FLATS AND WATERWAYS AND MANUFACTURING DISTRICT TO THE RIGHT IN BACKGROUND. WHEAT WAREHOUSES IN NEAR FOREGROUND WITH NORTHERN PACIFIC HALF MOON YARDS AT RIGHT.

Generated on 2024-07-25 20:36 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY



CHICAGO, MILWAUKEE AND ST. PAUL RAILROAD DEEP SEA WATER TERMINAL AT TACOMA, SHOWING DREDGED WATERWAY AND WAREHOUSES. TYPICAL OF DEVELOPMENT ON TIDE FLAT AREA.

operates one of the largest plants of its kind on the coast, including marine construction and the manufacture of logging engines, machinery and motor boats. Its new plant covers ten acres on the tide flat contiguous to the Milwaukee railroad.

The Phoenix Engineering Co. are extensive manufacturers of marine and saw mill machinery with a well arranged plant.

Tacoma Ornamental Iron Works are erecting a new plant to be entirely electrically driven and supplied with the best equipment in their line.

Griffin Wheel Co. are building a large new car wheel plant and the Tacoma Railway & Power Co. operates large repair shops besides the railroad shops of the Northern Pacific and Chicago, Milwaukee & St. Paul.

Tacoma is visited regularly by steamships plying between this port and all parts of the world carrying both freight and passengers, besides a great number of "tramp" steamers and steam schooners that are chartered for special trips, as freight carriers. A fleet of sailing vessels departs annually for South America, Australia, African and European ports, principally in the lumber and wheat carrying trade. Nine hundred vessels cleared from Tacoma in 1909, laden with merchandise for deep sea destinations.

The year past, a new line of steamships has been established, operating between Tacoma and the Orient by the Osaka Shosen Kaisha, of Japan, one of the largest steamship companies on the eastern continent. Six steamers have been constructed for the American trade, three of which are now scheduled on the Tacoma run in connection with the C., M. & P. S. railway, and two more are scheduled to enter later in the season. This line makes trips from Tacoma to Yokohama, Kobe, Hongkong, Keelung, Moji, Shanghai and Manila, and makes connections with its other lines for all Japanese, Korean, Chinese and Siberian ports, sailing from Tacoma every 28 days.

Dodwell & Co., agents for the Ocean Steamship Co. and China Mutual Steam Navigation Co., operate a fleet of steamships between Tacoma and the ports of Yokohama, Kobe, Hongkong, Manila, Singapore and Liverpool, in connection with the Northern Pacific railway, making one sailing a month, the time from here to Liverpool being 60 days. The ships of this line are freighters with cargo carrying capacity from 9,000 to 12,000 tons each.

Through the medium of the Kosmos line, operating a fleet of German steamships between Tacoma and Hamburg via the West coast ports, an enormous volume of business is being developed with South and Central America and Mexico.

Geographers refer to Alaska and Hawaii as "detached possessions" of the United States, and treat them very much in the same relation to this nation as foreign countries are treated, but the Puget Sound district and Tacoma are in close connection with these important divisions of our nation's commonwealth, and their commercial importance is becoming greater and greater, year by year.

The commerce of these countries is included in our coastwise trade. Tacoma has two lines of steamships, owned and operated by Tacoma capital, besides the several other steamship companies engaged in this traffic. The Alaska Coast Co. owns and oper-

Generated on 2024-07-25 20:36 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

ates a fleet of four steamships, with sailings every 10 days to the ports of Western Alaska.

The Alaska Steamship Co. operates a fleet of 12 steamers with sailings every two days from Tacoma to the Alaskan ports. The Northland Steamship co. operates the steamer Northland to Southeastern Alaskan ports, and the Schubac & Hamilton Co. charter ships for Nome and St. Michaels during the five months that navigation is open in Bering sea.

The Pacific Coast Steamship Co. operates a fleet of 16 vessels, six of which make regular sailings from Tacoma, giving transportation facilities from Mazatlan, Mexico, on the south, to Nome, Alaska, on the north.

The Alaska-Pacific Co. and the Matson Navigation Co. each operates a line of steamers between Tacoma and San Francisco and Los Angeles, with sailings every few days.

The Hawaiian Steamship Co. operates a line of four steamers from Tacoma to California points and to Hawaii.

Rounding out the water business of Tacoma and the Sound, is a fleet of small steamers plying to countless settlements on Puget Sound, known as the "mosquito fleet." In the aggregate they do a vast business and form the one transportation outlet for the products raised along the shores of Puget Sound where the railroads have not yet found their way. Leading the list, perhaps, are the Flyer and Indianapolis, plying between Tacoma and Seattle in the passenger traffic, making four round trips daily. Some twenty of these little craft operate on schedules to various parts of the sound.

HANDLING MISCELLANEOUS FREIGHT AT THE WHARVES AT TACOMA.

The Tacoma *Ledger* sums up the recent development of Tacoma in the following:

"Bank clearings for the year 1909 largely exceeded those of any previous year and with the exception of the month of April, each month showed a decided gain on the clearings for the corresponding month in 1908. The total of $280,878,800.79 for 1909 shows a gain of $62,765,029 over the clearings of 1908. The strength of the banks is shown by the high reserve maintained, being $5,582,000 on Nov. 16, 1909, or 32 per cent.

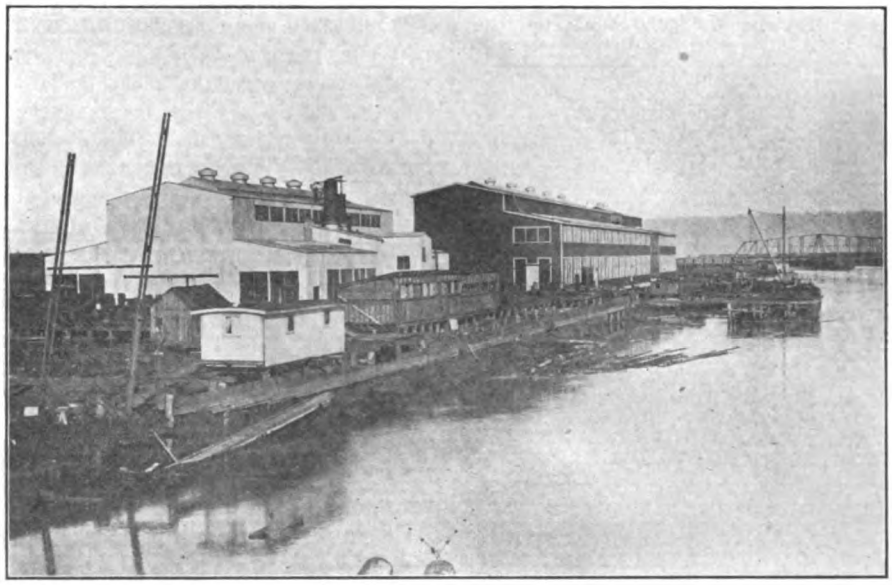
"To illustrate most forcibly Tacoma's great business growth in recent years, a comparison with the clearings for 1899, ten years ago, with those of the year just passed is most interesting. It must be remembered that 1899 came after the panic of 1893 had spent its force and when business in the country at large was in a most satisfactory condition. Tacoma's clearings for 1899 of $45,389,836, which were $18,000,000 more than the clearings for 1896, the point of lowest depression after the panic of 1893, were $235,488,965 less than the clearings of 1909, or in other words the clearings of 1909 show a gain of 520 per cent over those of 1899.

"This great increase in banking activity is easily accounted for when Tacoma's immense volume of business in all kinds of trade, manufacturing and commerce is considered. The four hundred odd manufacturing concerns of the city with a capitalization of $20,000 000 employing an army of 12,000 men with a monthly pay roll of $750,000, produced an output during the year valued at $50,000,000, a substantial increase over any preceding year. The jobbing trade of Tacoma for 1909 aggregated $50,269,000, a heavy increase over 1908. Most of Tacoma's largest wholesale concerns have erected and are now housed in substantial new buildings that will greatly facilitate their rapidly growing trade. The immense Tacoma expen-

FLYER, PASSENGER STEAMER PLYING BETWEEN TACOMA AND SEATTLE.

Generated on 2024-07-25 20:36 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

ditures during the year by the Northern Pacific, Great Northern, Union Pacific and Chicago, Milwaukee & Puget Sound railroad companies in the improvement of their terminals



PUGET SOUND IRON & STEEL CO.'S PLANT ON PUYALLUP RIVER.

and the recognition of the fact that millions more will be spent in the near future, gave a remarkable impetus to business in all lines as it seems certain that owing to its unsurpassed wharf and dockage facilities, Tacoma is destined to become the main entrepot for the great future commerce with the Orient. The ocean commerce of Tacoma, which in the year 1900 totalled $22,803,773, was $41,185,762 for 1909."

Tacoma has an area of 40 square miles and a population of 110,000. A total of 974 vessels entered and 920 vessels cleared from the port of Tacoma during the year of 1909, the inward registered tonnage of which was 1,989,298 tons, and the outward registered tonnage 1,005,303. The inward cargo tonnage was 339,504 tons and the outward cargo tonnage was 770,118 tons.

A total of 1,330 American vessels, with a tonnage of 855,916 and 1,312 foreign vessels with a tonnage of 1,030,683, entered, and 1,410 American vessels, with a tonnage of 924,112, and 1,344 foreign vessels, with a tonnage of 1,240,981, cleared from the Puget Sound district.

The development of Tacoma's harbor has for many years been hindered by inadequate railroad facilities. For 35 years Tacoma has remained the terminus of one road. In 1905 the Chicago, Milwaukee & St. Paul determined on an extension from the Missouri river to Puget Sound.

Following the Milwaukee, the Union Pacific (Oregon & Washington) acquired an ocean terminal on the tidelands. Then the Great Northern came from Seattle to share unexcelled priorities of the Northern Pacific. The Pacific & Southeastern has acquired 177 acres of tide-lands beyond and adjecent to the Milwaukee terminals. From west to east, the head of the bay is now occupied in this order:

1. The Northern Pacific and Great Northern.
2. The Union Pacific and Southern Pacific.
3. The Tacoma Eastern (now Milwaukee).
4. The Chicago, Milwaukee & Puget Sound.
5. The Pacific & Southeastern (Hawley).

Beyond the Pacific & Southeastern to the east and north is additional waterfront acreage available.

The harbor and yard development of the Chicago, Milwaukee & Puget Sound may be classed as typical of the new era on the tideflats. The Milwaukee has 247 acres. In width the main tract is 1,685 ft. On the east side the strip is 6,600 ft. long, and on the west side bordering the Puyallup river, 4,200 ft. The channel into this ground has been dredged 1,500 ft., with a width of 250 ft. and a depth of 35 ft. The ultimate length of this channel is 3,500 ft. The possible waterfront of the Milwaukee, of sufficient depth for the largest ocean steamers, is given as three miles and a half, created by this plan of dredging and filling in until the harbor is made and the necessary land adjacent for tracks and warehouses is built up.

This plan can be duplicated three times on the same frontage of 1,685 ft. between the Milwaukee's east line and the bluff, and with the same

TONNAGE RECORDS OF TACOMA FROM 1898 TO 1909.

Year.	Entrances	Clearances	Inward registered tonnage.	Outward registered tonnage.	Inward cargo tonnage.	Outward cargo tonnage.
1898	610	594	783,578	781,056	57,311	852,378
1899	541	548	718,723	725,582	86,913	854,698
1900	702	693	950,701	917,332	127,287	999,359
1901	852	847	1,042,428	1,024,863	152,920	1,208,417
1902	888	890	1,069,738	1,064,098	167,329	1,112,609
1903	852	805	980 735	1,036,401	169,390	1,055,941
1904	741	760	896,595	909,628	213,193	858,103
1905	818	799	1,079,210	1,053,199	279,333	761,333
1906	926	918	1,651,031	1,594,615	278,278	757,369
1907	921	831	2,054,601	2 109,283	347,773	868,569
1908	819	810	2,018,812	1,995,077	308,479	752,979
1909	987	915	2,041,862	2,055,962	343,759	764,508

DEEP SEA TONNAGE FOR 1908—1909.

	1909.	1908.
Deep sea arrivals	987	819
Deep sea departures	915	810
Inward registered tonnage	2,041,862	2,013,812
Outward registered tonnage	2 055,962	1,995,077
Inward cargo tonnage	343,759	308,479
Outward cargo tonnage	764,508	752,979

IMPORTS AND EXPORTS FOR 1908 and 1909.

IMPORTS.

1908 Foreign receipts	1909 Foreign receipts	1908 Coastwise receipts	1909 Coastwise receipts	1908 Total receipts	1909 Total receipts
$11,072,776	$10,693,988	$7,853,700	$8,664,166	$18,926,476	$19,358,154

EXPORTS.

1908 Foreign shipments	1909 Foreign shipments	1908 Coastwise shipments	1909 Coastwise shipments	1908 Total shipments	1909 Total shipments
$13,750,762	$8,258,594	$9,688 083	$13,040,281	$23,438,845	$21,298,875

Generated on 2024-07-25 20:36 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

length, the additional dock line would be totaling ten and a half miles, fourteen miles of channel with perfect anchorage and wharves.

The greater harbor of Tacoma must be built on the Milwaukee plan of making deep water channels and wharves. Tacoma and Tacoma harbor have at present great possibilities. Known for many years for its factories and recently having acquired railroad terminals of immense capacity, it remains for the city to develop its natural advantage by a far-sighted, systematic harbor administration. This must be done by public supervision, to enable the several private interests to work together for the best results.

BUNKERAGE ON GRAIN AT TACOMA-SEATTLE.

	Per 2 000 lbs.
Cleaning	20 cents
Smutting	75 cents
Single sacking	25 cents
Double sacking	55 cents
Warehousing	35 cents

including unloading from cars and 30 days storage. Outbound handling, 12½ cents per 2,000 lbs. for handling from warehouse to ship side or into cars.

The rates for handling freight to various Puget Sound points, are per 100 pounds:

Tacoma to Port Angeles	25 cents
Tacoma to Seattle	7½ cents
Tacoma to Port Townsend	20 cents
Tacoma to Everett	12½ cents
Tacoma to Bellingham	12½ cents
Tacoma to Olympia	10 cents

To the south coast cities:

Tacoma to San Francisco:	
On car load lots	$3.00
On less than car load lots	4.00
Per 2,000 lbs. on returned empties	2.25
Car load lot, minimum	15 tons
Tacoma to Los Angeles:	
On car load lots, per cwt	$ .50
On less than car load lots, per cwt	.65
Tacoma to San Pedro:	
On car load lots, per cwt	$ .42
On less than car load lots, per cwt	.55

RATES ON WHARFAGE AND STORAGE AT TACOMA.

Commodity.	All charges in cents per ton of 2,000 lbs. or 40 cu. ft. Wharfage.	Storage.
All freight less than car load lots	$ .50	$ .25
Explosives	1.00	..
Canned fish	.50	.25
Minimum, single shipment	.25*	.25
Minimum, single shipment	.10†	.25

*On ocean shipment.
†On Puget Sound.

Freight transferred direct between vessels at wharf not using wharf facilities, one-half above rates.

Lumber, per 1,000 ft. B. M.	50 cents
Grain, per ton	25 cents
Cement, per ton	25 cents
Asphaltum	25 cents
Shingles, per 1,000	5 cents
Salt, per ton	25 cents

PRESIDENT OF ALASKA STEAMSHIP CO.

On May 25, at Seattle, Joseph H. Young, former general superintendent of the Southern Pacific railroad, at San Francisco, was elected president of the Alaska Steamship Co. and the Northwestern Commercial Co.'s, to succeed President Charles E. Peabody, of the Alaska Steamship Co., and W. R. Rust, former head of the Northwestern companies. Mr. Young will have general supervision of the Morgan-Guggenheim interests in Alaska and the northwest, with headquarters at Seattle. He is well known in railroad and shipping circles, especially in the west, having been in charge of the harbor fleet, the Sacramento river fleet, the Pacific Mail, and the Occidental & Oriental Steamship Co. in his work with the Southern Pacific railroad. Mr. Young will be officially elected vice president of the Copper River & Northwestern railroad next fall, though he is now acting in that capacity.

JOSEPH H. YOUNG,

President of the Northwestern Commercial Co. and Alaska Steamship Co., Seattle.

Charles J. Jones, formerly assistant general freight agent of the Southern Pacific, will have charge of the traffic department of the Copper River & Northwestern railroad and the Alaska Steamship Co., with office in Seattle.

The directors elected for the Northwestern Commercial Co. are: S. W. Eccles, J. H. Young, M. R. Guggenheim, W. E. Bennett, D. H Jarvis, Stephen Birch, W. H. Bogle and W. P. Hamilton. The directors elected the following officers: J. H. Young, president; S. W. Eccles, vice president; D. H. Jarvis, secretary and treasurer; W. T. Ford, auditor; W. E. Bennett, assistant secretary; J. K. MacGowan, purchasing agent; W. B. Sprague, assistant purchasing agent; Bogle & Spooner, general counsel.

These directors have in charge the affairs of the Northwestern Commercial Co., North Coast Lighterage Co., Northwestern Fisheries Co., and the Northwestern Steamship Co., which has been combined with the Alaska Steamship Co.

The directors of the Alaska Steamship Co. are: J. H. Young, D. H. Jarvis, J. N. Steele, C. J. Jones, M. R. Guggenheim, W. H. Bogle, S. W. Eccles and Stephen Birch. Officers of the Alaska Steamship Co. were elected as follows: J. H. Young, president and general manager; S. W. Eccles, vice president; D. H. Jarvis, secretary and treasurer; W. E. Bennett, assistant secretary; C. A. McMasters, auditor; J. K. MacGowan, purchasing agent; and Bogle & Spooner, counsel.

General Manager Frank Burns, whose resignation has been accepted by the Alaska Steamship Co., will, after a vacation, take up duties in connection with the Puget Sound Steamship Co., of Seattle.

CHARLES J. YOUNG,

Traffic manager for Alaska Steamship Co., and Copper River & Northwestern railroad.

OCEAN PIERS AT SEATTLE.

The Oregon & Washington railroad is beginning the construction of two ocean piers at the foot of Weller street, Seattle. The plans call for two docks, one of which will be 1,055 ft. long from the property line of Railroad avenue to the harbor line; 126 ft. 10 in. in width, with a shed 90 ft. wide. The first 125 ft. will be bulkhead, from which point the dock proper starts. The southern dock, which is to be built first, will have a total length of 1,135 ft. the two piers being separated by a slip 154 ft. in width. Ten offices are planned for each pier; three conveyors and two slips on pier No. 1 and two conveyors and two slips on pier No. 2. About 2,000 creosoted piles will be used and the estimated cost is about $400,000.

Generated on 2024-07-25 20:36 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

Removing Scale from Hulls of Ships with Pneumatic Hammers Under the Piece-Work System

By a Staff Correspondent.

SOME years ago, the scaling of hard scale from a ship's structure was done with hand scaling hammers. There is a great deal of this work to do, particularly in ships which have been in service for considerable periods of time. The scaling with hand hammers is laborious, slow and costly. Scaling by means of the sand blast has been tried and is fairly successful for the outside of a ship, but is not suitable for inside work and has never been generally adopted. The method which has given the best all around satisfaction is to scale by means of a pneumatic hammer and a blunt chisel. The hammer used is the small Chicago Pneumatic "F" hammer, or its equivalent of other makes. This hammer weighs but 5 pounds and is easily handled. The hammer and the chisel most commonly used are shown in Fig. 1. For the various classes of work, chisels best adapted to the work have been developed. These chisels are shown in the photo-reproduction and the sketches, Fig. 2, which are self-explanatory and no further description is considered necessary. Common labor is employed for this work, and an expert scaler can be developed in a few weeks. In confined spaces, like double bottom tanks, the men wear respirators, which are furnished them, and thin gauze over the face to protect the eyes from the fine scale. In open spaces, the respirators are not necessary, but the gauze over the face is used.

Difficult to Secure Satisfactory Output at Day Work.

With men working at day work, it was found to be very difficult to secure what was considered satisfactory output. The fact that so much more was accomplished with the pneumatic hammers than had previously been done with the hand scaling hammers perhaps caused delay in securing maximum production from the machine work. Systematic efforts were made to increase the output. Records were kept of the amount of work done by each man each day, and it was found that the output averaged about 50 sq. ft. for an eight-hour day. It was noted, however, that when the men were scaling in plain sight, as for example on the side of a ship in dry dock, where careful supervision could be obtained, the output went up to 75 or 80 sq. ft. in eight hours. From careful observation of the work, I was satisfied that the men could do three or four times the amount that was actually done, and I was also satisfied that this output could be obtained if the men were adequately paid for the work. It was, therefore, decided to do all scaling by piece work. To determine the proper piece work rates, the methods advocated by Fred W. Taylor were employed.

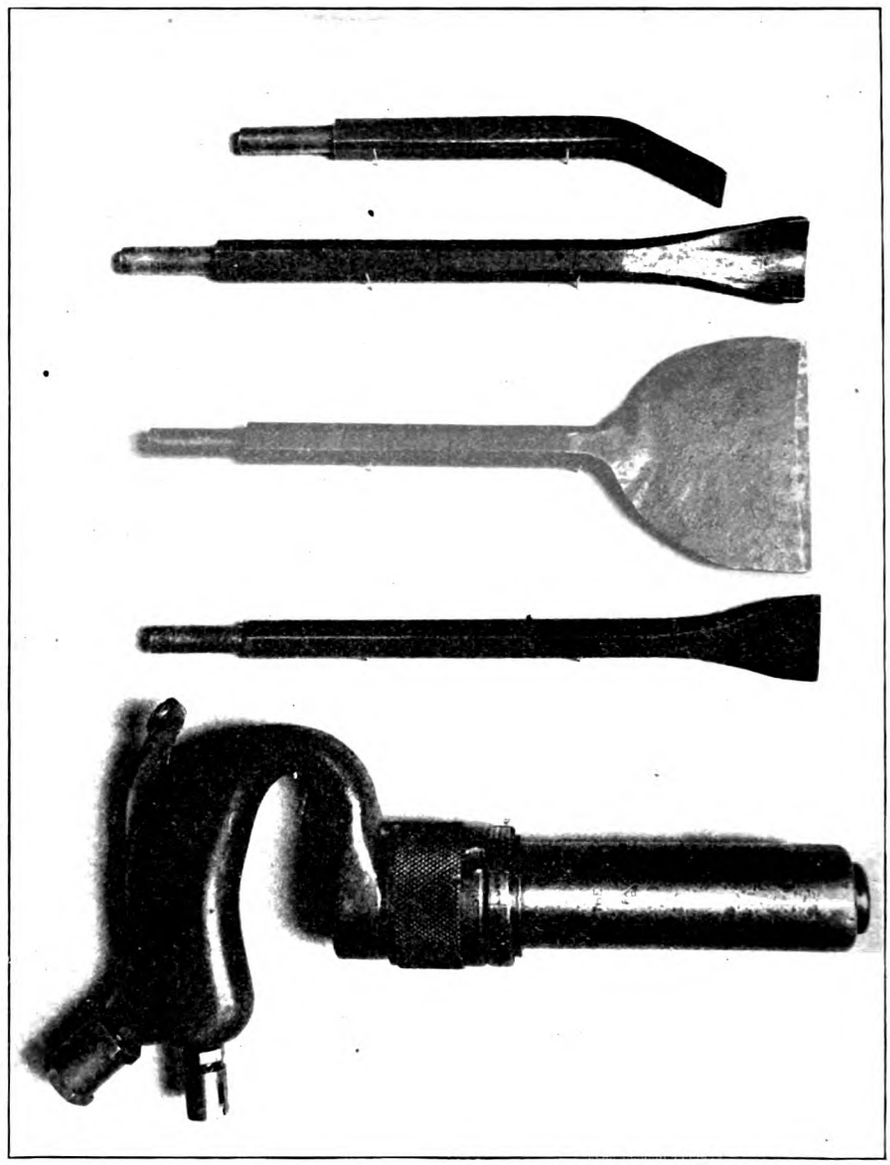


FIG. 1.

Reading from top—1, Scaling chisel for frames, I-beams, etc. 2, Scaling chisel for half round, bulb beams, etc. 3, Scaling chisel for decks. 4, Scaling chisel for general use. 5, "F" Boyer hammer.

Determination of Piece Work Rate.

To obtain definite information as to the amount a *man can* scale in a given time, the following observations were

Generated on 2024-07-25 20:36 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

made. A space representing average conditions was laid off between the deep water line and the light water line on the side of a large ship. This was accurately divided into ten equal sections. Nine of the best scalers and one foreman in succession scaled a section, and stop watch times were taken. The work was done under the immediate supervision of a superintendent and in accordance with his specific instructions, and the men worked to their capacity for this short period of time. The experiment was repeated on another part of the ship and the average of the 20 observations taken. It was found that if the men could work all day at the rate when timed that they could accomplish 416 sq. ft. in eight hours. This, however, was known to be impossible. One-half of the time was allowed for periods of rest, going to the lavatory, shifting berths, changing chisels, dropping a hammer or chisel from the staging, oiling hammers, and other unavoidable delays and the daily task was placed at 200 sq. ft. To produce this result requires severe bodily exertion and fatigue, and it was considered necessary to pay 50 per cent more than the regular wages to obtain the maximum results.

Common labor receives high wages in some districts, and the prevailing rate at the yard under consideration is $2.40 for eight hours, and is about the average rate in that vicinity. Fifty per cent added to this makes a rate of $3.60 per day, and if 200 sq. ft. is the daily task, the piece work rate will be 1 8-10c per sq. ft., and this rate was adopted.

Can the Maximum Output be Obtained by Attempting to Drive Men?

To those not intimately associated with the management of workmen, the question arises, Cannot the same results be obtained by good supervision at day work and at cheaper cost? To those acquainted with the management of men, it is known that this is impossible. I am satisfied that at day work by actually driving the men, not more than 100 sq. ft. can be obtained, and this only under favorable conditions, where the work is in sight. The average will fall far below this figure.

Moreover, good men will not stand driving, and again, they will see laborers in other classes of work doing a great deal less than they are doing and yet obtaining the same pay. As the work of scaling requires more exertion than other work for which a laborer receives the same wages, it stands to reason that the men will seek easier employment unless inducements are offered. On the other hand, if it is known that laborers, by hard work, can earn $3.60 a day, there will be attracted the active, strong, ambitious laborers, and in a short time, there will be employed the best body of laborers in the section. The attempt to drive men to an output anywhere near the maximum without pecuniary reward has been tried over and over again, and invariably fails.

Increase in Output Obtained From Piece Work.

The results anticipated were obtained in a few weeks. At the yard in question, there had been the greatest opposition to piece work, and all the labor organizations had passed resolutions condemning piece work. When, however, the men learned, day by day, the wages the few piece workers were earning, there were additional applications to be put on piece work, and in a short time all the work of this character was done by the piece. The same price was adopted for all scaling work, both inside and out, and was accepted without a complaint. The output increased enormously, the men obtained excellent wages, and the work was done at much less cost than previously.

Comparison—Day Work and Piece Work.

Soon after piece work was well established, it was decided to make a comparative test of the piece workers and day workers to ascertain the maximum that could be obtained from day workers. The comparison was made under the most favorable conditions for day work. A few laborers, from four to six, were selected for piece work and about the same number were selected for day work. The ability of the day workers was in every respect equal to that of the piece workers. The piece workers were put on one side of a large ship in dock and the day workers on the other side. The day workers were notified that a comparative test was being made between day work and piece work, and in addition, each man had his berth laid off for him and measured up, and each night the amount of work that he had done was carefully measured up and reported. The most careful supervision was given to the day workers and without question the maximum amount of work that could be obtained from the day workers was obtained. No such results as those given below can be obtained in general from

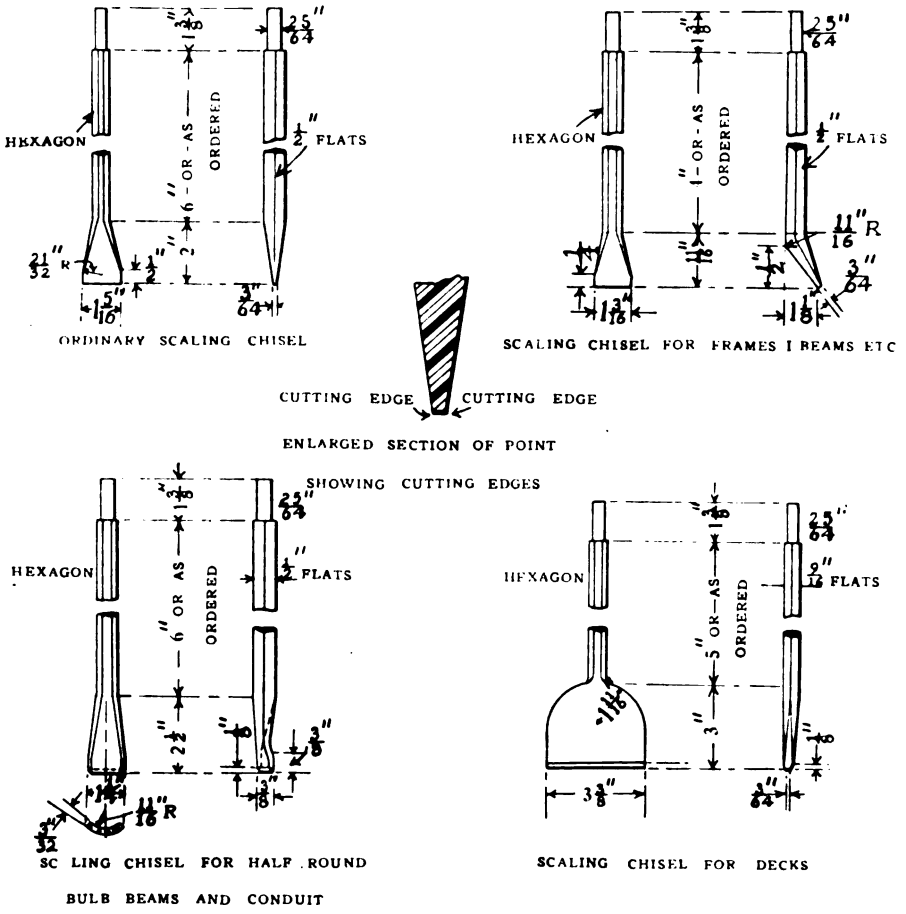


FIG. 2.

Generated on 2024-07-25 20:36 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

day workers. The table which follows gives the detail information obtained from the test:

COMPARATIVE COST OF SCALING OUTSIDE UNDERWATER BOTTOM BY DAY WORK AND BY PIECE WORK.

	Piece Workers.	Day Workers.
Total surface scaled, square feet	6,235	2,223
Total cost	$112.23	$52.50
Cost per square foot	$ 0.018	$ 0.024
Total number of hours worked	274	175
Average surface scaled per man per hour, square feet	22.76	12.703
Average surface scaled per man per day of 8 hours, square feet	182.04	101.623
Average amount earned per man per hour	$ 0.4096	$ 0.30
Average amount earned per man per day of 8 hours	$ 3.2768	$ 2.40

I observed this work closely while it was going on, and immediately saw one important difference between a day worker and a piece worker. In scaling, a patch of scale is frequently run into which comes off very easily. When such scale is encountered, by holding the hammer at a slight angle, with the surface to be scaled, the scale can be removed very rapidly. The hard scale requires that the hammers be held at nearly right angles to the surface to be scaled. A piece worker, when he encounters the soft scale, immediately changes his method of scaling, and, as it were, "scrapes" off the scale, doing this very rapidly. The day worker continues scaling in the same manner as for the scale that is hard, and unless a close examination is made, it would not be noticed that the scale could be removed more rapidly.

The test was not continued any further than that given in the table above, because it was easily seen that the work could be done at considerably less cost by piece work, and, moreover, this required less supervision. The most rigid inspection, however, is made of the work done by piece work when it is being measured up, and in several cases the piece workers have been made to go over their work again. Since they have learned that unless the work is first-class in every respect, it will have to be gone over, no trouble has been experienced in the character of the work turned out.

Maximum Results Expected Obtained.

From the above table it will be seen that an average of 182 sq. ft. in eight hours was obtained. It will be noted that in fixing the piece work price from the observation of unit times, it had been calculated that 200 sq. ft. a day could be obtained. The average given above shows the accuracy of the calculations. A few men, however, exceeded slightly the amount expected. The record of the highest paid piece worker is of interest and is given below.

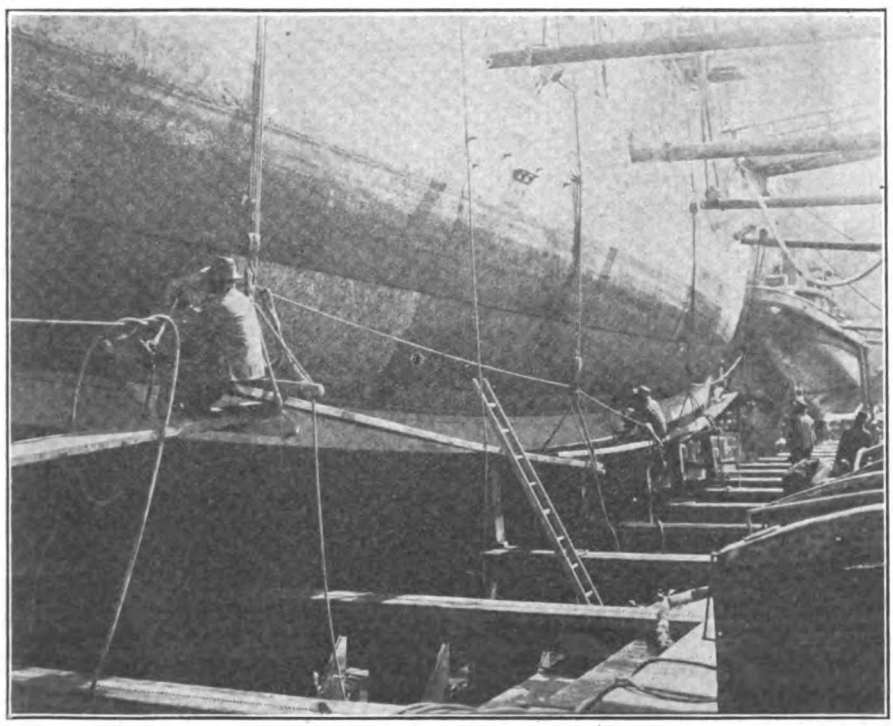
Record of Best Piece Worker.

Number of days worked	18
Number of square feet scaled	3860
Total wages for above	$ 69.48
Average wages per day	$ 3.86
Average square feet scaled per day of 8 hours	214.4
Average square feet scaled per hour	26.8
Average wages per hour	$ .48

The above covers three distinct classes of work, as follows:

(a) Outside shell plating from water line to bilge keel.

(b) Bottom plating, bilge keel to keel.



SCALING SHIPS BY PIECE WORK.

(c) Hold, shell plating, and bulkheads, including frames, angles, butt-straps, etc.

The record on each class of work is as follows:

	Outside Shell.	Bottom below Bilge.	Hold.
No. of days worked	8.5	7	2.5
No. sq. ft. scaled	2010.0	1252	598.0
Average scaled per day	236.5	178.8	239.0
Average wage per day	$ 4.25	$ 3.22	$ 4.30
Average ft. per hr. scaled	29.5	22.3	29.8
Average wage per hour	$ .531	$ .402	$ .537

From the record of the highest paid piece worker, it will be seen that the earnings amounted to $3.86 per day, while the average earnings of the piece workers amount to about $3.25 per day. The maximum wage assumed in fixing the rate was $3.60 per day, so there is close agreement between the results expected and those obtained.

TORPEDO BOAT DESTROYER PARANA.

The official full-speed trial of the torpedo boat destroyer Parana, built for the Brazilian government by Messrs. Yarrow, of Glasgow, took place April 17, on the Skelmorlic deep water measured mile at the mouth of the Clyde, when a mean speed of 28.736 knots was obtained during a continuous run of three hours, the mean air pressure being 2 in. The above speed was obtained carrying a load of 100 tons, and it may be interesting to note that the contract speed of this vessel carrying this load is 27 knots.

The Parana is the ninth of the ten destroyers ordered by the Brazilian government from Messrs. Yarrow. The first seven are now in Brazil, and the eighth will be leaving the Clyde shortly. The dimensions of the Parana are: Length 240 ft., beam 23 ft. 6 in. Steam is supplied by two double-ended Yarrow boilers of the latest type.

In these Brazilian destroyers, strength of construction and good seagoing qualities were deemed—as in the British navy—of even greater importance than high speed, as both the British and Brazilian destroyers have a guaranteed speed of 27 knots.

The city engineer of Tacoma, Wash., has planned for the erection of a steel vertical lift bridge on Eleventh street, to span the Puyallup river, over which direct connection will be made with the docks and machine shops of the Chicago, Milwaukee & Puget Sound railway and the entire tide flat district. In the type of bridge proposed, the middle span may be raised but not opened or swung.

Generated on 2024-07-25 21:34 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

A Straw Navy

THE series of letters on "The Naval Waste," published in THE MARINE REVIEW during the last half of 1909, exposed most thoroughly the wastefulness, extravagance and incompetence of the naval administration. For these THE REVIEW was the subject of bitter abuse by friends and dependents of the department, but no single statement made therein was shown to be overdrawn, much less disproved. Those articles dealt chiefly with the navy yards and bureaus, but the conditions are even worse afloat. Especially is this true as to the engine and boiler rooms, where inexcusable stupidity and criminal ignorance periodically reap a harvest of death.

Shortly after the publication of the letters referred to above in February, 1910, reports began to be circulated regarding the condition of the engines and boilers of the Maryland and West Virginia, armored cruisers, attached to the Pacific fleet, and then recently arrived at San Francisco from the Orient. The reports stated that the machinery of these ships was in a demoralized and dangerous condition, and that the ships were not fit to go to sea, and that the Maryland in particular, had to be towed for a considerable part of the homeward voyage because of the complete failure of her engines and boilers. These reports were indignantly denied by naval officials, Admiral Barry going so far as to say that the Maryland was towed designedly "because he wanted some data on towing." The commandant of the Mare Island yard also branded the reports as false, and stated that the ships were in condition to go immediately to sea, if required, and that all that they needed was minor repairs and the customary overhauling.

Getting at the Facts.

THE REVIEW said at the time that the denials might satisfy members of congress and laymen but no others, and took immediate steps to get at the truth. An expert was sent to investigate with instructions to ascertain the exact facts and his report, dated May 12, is at hand. He visited the ships repeatedly, he talked with officers and men; he examined into the conditions in engine and boiler rooms, he saw the work of repair in progress, and his report demonstrates conclusively that the actual conditions were many times worse than the most highly colored of the published reports. It demonstrates what is even more important, that the counter-statements of the naval officials not only suppressed the facts but were made in plain defiance of the truth, and this THE REVIEW desires to make as emphatic as possible.

The full text of this report cannot be given here without identifying sources of information, which are given and every statement verified by the departments' own records, but the leading facts touched upon in the reports referred to are noted.

When the Pacific fleet left Yokohama for Honolulu the admiral ordered a speed of 15 knots. So far as the Maryland and West Virginia were concerned this speed was merely loafing, as their contract trial speeds were 22.41 and 22.15 knots respectively, and the power required was only about three-tenths of that developed on contract trials, which was 28,000 for the Maryland and 26,000 for the West Virginia.

The Case of the Maryland.

The chief engineer of the Maryland, coached by his warrant officers, reported that her boilers were in such condition that the Maryland could not make this speed with safety, (think of this for a ship only four and a half years old) and an examination of the boilers was then made by Fleet-Engineer Clark, who in his infinite wisdom and long experience — *as a line officer*—announced that the Maryland could make 15 knots. So the order stood.

With boilers strained and leaking, joints spurting and fizzing and threatening to let go at any moment, the ship went to sea. In two days, conditions in the stokeholds became so serious that the engines were shut down and the boilers eased for fear of an explosion and the Maryland was towed the rest of the way to Honolulu, "so that Admiral Barry could get some data on towing," and "to save coal."

The latter had some slight basis of fact, since the coal consumption, even limping along in the effort to make 15 knots, was from 270 to 280 tons per day.

The facts are that the engineer officers knew nothing about their boilers; the men on watch knew, and one watch absolutely refused duty because of leaking tubes and the danger of explosion. They can scarcely be blamed for declining to leave their lives in the keeping of officers whose actual experience will be shown later.

The Maryland arrived home at last, with her boilers practically wrecked, tubes sagged and dangerous, and her crew nervous and apprehensive, and with *morale* absolutely destroyed. *And during all this time piles of new spare tubes lay in the bilges until they were ruined by salt water and corrosion, and had to be scrapped.*

The foregoing are facts and have been deliberately suppressed.

THE REVIEW'S correspondent himself saw the ship's crew, together with some help from ashore, attempting to cut out the many defective tubes. The process was symbolic of navy methods; men chipping ineffectually, and almost aimlessly, at tubes and nipples by hand with chisel and hammer, while pneumatic hammers lay unused in an adjoining compartment, and in a stokehold lighted by one dirty 16-candle-power electric lamp and several tallow candles.

Even the officers finally began to realize the serious conditions in the machinery spaces, and those on the West Virginia and Maryland filed a protest against the ships going to sea for target practice March 1 without extensive repairs. An officer of the Maryland declared that the boilers and engines were "mere junk", that the crew was constantly in danger, and the men afraid to work below decks. The protest was unheeded at Washington, and the ships were sent to sea.

Record of a Few Explosions.

Just to show that these fears were not unfounded, the following record of a few explosions is inserted.

Feb. 14, 1910, a tube in the forward boiler room of the destroyer Hopkins pulled loose from the header, killed one man and maimed five others. The boiler was carrying 200 lb. of steam at the time and is designed for a working pressure of 250 lb. March 25, 1910, a second explosion exactly similar to the first occurred on the Hopkins; by rare good fortune no one was killed the second time. The officers laid the trouble to faulty construction. Nevertheless thousands of water tube boilers of exactly the same type are in service today in every part of the world and accidents

Generated on 2024-07-25 20:40 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

of this nature are rare indeed. The fault lay not with the boilers but with their management, and was due to excessive driving, lack of water, and consequent overheating, to say nothing of accumulations of scale and rust in the tubes and connections. On this same torpedo boat Hopkins ten tubes blew out in nine months. The men complained that they were compelled to work in the fire room at the risk of life and limb, a complaint which the records show to be only too true.

In February a tube pulled out on the cruiser Colorado, killing two men, an accident almost precisely similar to one that occurred on the same ship five months previous.

In June, 1909, a boiler tube explosion on the torpedo boat Hull maimed seven men. So the grewsome list might be prolonged almost indefinitely, and always the same excuse; the boilers are faulty. Strange that these boilers should always select naval vessels, on which the duty is never severe, when they wish to explode.

How Responsibility is Evaded.

Who is held responsible for this roll of death and destruction? No one; the chief engineers are whitewashed and their defense is *ignorance.* The chief engineer of the Bennington, on which occurred one of the most disastrous boiler explosions in all history, *had never stood a watch in the engine room!* His only plea at the court martial was *ignorance.*

The reasons for this state of affairs are two-fold; ignorance of the officers aboard ship and the shifting of responsibility ashore. Of the former we shall have more to say later; let us now see how skillfully the blame for accidents is juggled about by means of that very convenient instrument, a board of inquiry.

The chief engineer of a cruiser, coached by his warrant officers, reports to the captain that the boilers of his vessel are badly in need of repair. This report winds its tortuous way through official channels and finally reaches the commandant of the navy yard. He knows nothing about boilers so he dare not take the responsibility of deciding and could not if he dared. Forthwith he appoints a board of inquiry consisting of officers who know nothing about boilers. This board deliberates, looks once at the boilers, takes "testimony" and finally *recommends* to the commandant that the boilers are all right except that they ought to be painted They are painted. The ship goes to sea, several tubes spring aleak, several more blow out and three men are killed. An investigation is ordered. The chief engineer of the ship is not responsible; he is covered by his report to the commandant on the condition of the boilers. The commandant is not responsible because he appointed a board and was merely guided by its findings. The members of the board individually are certainly not responsible and one cannot well court martial a whole board. Furthermore the board as a whole is not responsible, for it merely examined witnesses and *recommended;* it *ordered* nothing. So it goes in an endless circle. It's the navy way; nobody responsible, no one to blame.

Incidentally it may be mentioned that the naval regulations governing boiler inspection have not been revised since the years when only four or six relatively low pressure Scotch boilers were installed in a ship. Now a ship contains 30 or more high pressure water tube boilers, resulting in much perplexity to the ignorant young line officers in charge of the engine rooms.

The West Virginia's Engines.

The true story of the destruction of the engines of the cruiser West Virginia has never been published and it throws a very strong light on the deplorable conditions existing in the engine rooms of the United States navy.

Leaving the far east, the starboard engine began to show signs of distress and a violent knock developed in the high pressure cylinder. Later the piston rings broke. The engine was shut down and new rings inserted. These also broke. More rings were inserted only to be smashed. The officers in charge solemnly declared that the engine was out of line! At Honolulu a number of extra piston rings were made by a local iron works. These were also inserted only to be destroyed. Then the experiment of running the engine without rings was tried but with poor success. Steam blew through so fast that most of the water in the boilers came over into the engine. The crew was in a half panic. Finally the engine was shut down, the high pressure cylinder cut out and the engine run as a compound on the intermediate and low pressure cylinders. Now note. When the high pressure cylinder was disconnected the piston was blocked at the *top* of the stroke. Later, through leakage or the slipping of a valve, no one seems to know just how, live steam reached the upper side of this piston, the bolts that held it in place were sheared and the heavy piston suddenly dropped like a steam hammer. The piston was smashed, the piston rod sprung, the cylinder bottom wrecked, the webs and cross head guides cracked and the engine reduced to a state of junk. And to the end the ship's engineers persisted in the theory that the engines were out of line.

All this would be excruciatingly funny if it were not so serious. Even at a distance of 2,000 miles the cause of the trouble can be pointed out with absolute certainty, and without even seeing the scrap, by almost any experienced engineer.

Ignorant and Inexperienced.

The simple facts of the case are that the line officers in charge of the engineer's department are so ignorant and inexperienced that there are few who could pass a third class examination for a merchant license. One engineer asked recently to have a low pressure piston *rebored.*

The reason for this state of affairs dates back to the day when the engineer corps was abolished and merged with the line. Now all are line officers and take engine room duty by turns. Work below is not as pleasant as pacing the deck; in fact even a good engineer finds much unpleasant work below, and so everyone dodges the engine room and seeks a deck job. The result is that few of the chief engineers and their first assistants on even our largest cruisers and battleships have had more than a year's experience in the engine room and many have had less. Think of trusting the engine room of a battleship to a man of less than a year's experience! Yet this is just what the navy does!

The chief engineer of the Maryland has had *fifteen months' actual engine room experience;* the first assistant, an engineer, *six weeks* in the engine and boiler rooms and the second assistant, a midshipman, *six weeks.*

The chief engineer of the West Virginia was ordered to the ship in December, 1908, as chief engineer *with no previous engine room experience whatever,* and has served as chief since that time. The first assistant is an ensign who has had engineering duty *since December, 1909.*

The chief engineer of the California is a lieutenant *with 14 months' engine room experience;* the first and second assistants, *midshipmen* who have been in the engineering division *six weeks.*

A new fleet engineer has just been

Generated on 2024-07-25 20:40 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

ordered (June 5, 1910) for the Pacific fleet. He has had a total of less than two years' engine room experience and has been three months as chief engineer aboard ship. He could not get a license as second assistant engineer in the merchant service.

Such are a few of the facts regarding the Pacific fleet and it is typical of the whole. Does any sane man believe that a navy so officered is effective.

We have had impressed upon us the necessity and nature of the long and thorough training of our naval officers, and we have rested serene in the belief in their efficiency, but it requires neither imagination nor additional evidence to forecast our humiliation in the day of battle. The reports of the admiral and the navy yard commandant were not the truth; they were made deliberately and THE REVIEW believes, to cover up the facts. THE REVIEW has here made public but a part of the disgraceful record and is prepared to verify every assertion made and more, and without going outside the department.

Now note the sequel. A statemen made public in Washington in th last week in March, noting the retur of the Maryland, West Virginia an California from the target practic previously referred to, stated that the boiler repairs reported necessar were authorized, together with th *two forward cylinders of the West Vi ginia* (the damage to which was earli denied), the yard force would have t be increased *from 2,400 to 3,100* and t work *three shifts,* to get the ships read *by Aug. 1.* Seven hundred men fou months *to "make minor repairs."*

THE MARINE REVIEW maintains that at present constituted our navy merely of straw, and submits that case is made out. It belongs to ev citizen, the press, and congress demand a rehabilitation at the h of others than the crib-fed inco tents now in charge.

A PIPE-FITTING KINK.

On attempting to bend metal tubing of comparatively small thickness and large diameter, the tube will "kink" or "wrinkle" at the inside of the curve if means are not provided to prevent it. For steel and brass tubing two methods are in common use for obviating this difficulty,—heating so the metal may flow, and in addition filling the tube with some compact but flexible substance. The ordinary material used is rosin, which is melted and run into the tube.

At a prominent pipe shop on the Pacific coast, where large quantities of steel tubing from 2½ in. to 8 in. in diameter, and brass voice tubing varying from 1¼ in. to 3 in. in diameter, are bent, dry sand has been found to be the best filler. The sand must be "bone dry," or, on heating the tube, if the sand is damp, there is likelihood of an explosion from the steam formed. Another reason for the use of absolutely dry sand is that damp sand is apt to clog in the tube, forming air pockets, which invariably produce a "kink" at the bend.

DEVICE FOR FILLING PIPE

The accompanying illustrations show a mechanical device that has been devised for rapidly filling the tubes with sand. It was found that hand filling was too slow and laborious to be satisfactory; to fill a 12-ft. length of 5-in. steel tubing took three men three hours.

The mechanical filler needs but little explanation. It consists merely of a plate, under which is set an air hammer to vibrate the tube, a framework of pipe for holding the tube in place and a barrel to hold the sand. The tube to be filled has its lower end fitted with a wooden plug and is then placed on the overhanging plate of the machine, the large flange holding the lower end roughly in place and the short swinging piece of pipe holding the upper end. The quick-acting gate valve in the barrel is then opened and the hammer started by hooking the lanyard on the trigger in the notch provided. The pipe is tested from time to time by striking with a mallet, and, of course, sand must not flow too fast.

There is a trolley and a block near the barrel for filling it with sand when it becomes empty.

What used to take three men three hours is now done by two men using this device in less than three-quarters of an hour.

result is reached with mortification in that I am convinced that the pilots thrust by local law upon vessels of great cost, well manned and equipped, and carrying valuable lives, are guilty not of errors of judgment only, but of total ignorance of the fundamental statutes affecting their calling. The depositions of all the pilots testifying in this cause have been scanned in vain to find any indication of knowledge by them of such matters as the narrow channel rule, or of even a statutory recommendation to stop the engines promptly on hearing a fog whistle forward of the beam."

Generated on 2024-07-25 20:40 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

TORPEDO BOAT DESTROYER STERRETT.

The torpedo boat destroyer Sterrett was launched from the yard of the Fore River Ship Building Co., on May 12, being christened by Miss Dorothy Rosalie Gittings, of Baltimore, a direct descendant of Commodore Andrew Sterrett, for whom the vessel was named, and a niece of DeSourcy May, president of the New York Ship Building Co.

The principal dimensions of the Sterrett are as follows:

Length between perps,	289 ft.
Length over all	293 ft. 10½ in.
Breadth, moulded	26 ft. 4½ in.
Trial displacement	742 tons.
Trial draught	8 ft. 4 in.

Battery:

Five 3-in. guns.
Three 45 c.m. torpedo tubes on deck.
Two 0.30 caliber automatic guns.

The contract was signed on Oct. 1, 1908, and calls for delivery on Sept. 1, 1910.

The Sterrett is a torpedo boat destroyer, one of three similar vessels at present under construction at the works of the Fore River Ship Building Co. for the United States navy.

The vessel is flush decked all fore and aft with a topgallant forecastle, giving a high platform for the forward gun with good height for conning tower and steering stations, while contributing to the seagoing qualities of the ship.

The captain's and officers' state rooms, ward room and conveniences are arranged in the forecastle, while on berth deck immediately below these are quarters for part of the petty officers and crew, the remainder being berthed aft.

The machinery spaces occupy the amidship portion of the destroyer, the installation consisting of Fore River-Yarrow water tube boilers. The vessel is fitted with two Curtis reversible marine turbines, 6 ft. in diameter and capable of developing 6,000 H. P. each, at about 600 R. P. M., which will give the vessel a speed of 29½ knots per hour. It is expected that this speed will be very considerably exceeded.

New Steamship Service to Canada

ON Thursday, May 12, the turbine steamer Royal Edward, sailed from Bristol and thereby inaugurated the new steamship service to Quebec and Montreal of the Canadian Northern Railway Co. She will be followed by the sister ship, Royal George, a fortnight later, and it is interesting to note in this connection that these two vessels were formerly known as the Cairo and Heliopolis. During their service on the Mediterranean under the flag of the Egyptian Mail Steamship Co., they were without rivals and in some important respects they will be without rivals in the Canadian trade.

The port of Bristol has been adopted as the British headquarters of these steamers and of the management on the ground that Bristol offers the best facilities as a center for the south and west of England, where there are the classes of people it is most desirable to get to emigrate to Canada,—the great agricultural and commercial classes. The two great British railway companies, the Great Western and the Midland, are making special arrangements to handle the traffic, and to convey passengers to London in about one and three-fourths hours.

To adapt these two turbine vessels to the Canadian trade, no fundamental change in design has been made, but many suggestive alterations have been effected. A thorough overhauling has been undertaken by the original builders, the Fairfield Ship Building Co., of Glasgow. The bows have been strengthened to withstand the grinding of ice sometimes to be met with in the St. Lawrence. The twin funnels have been reduced in length and diameter; some of the casings on the upper deck have been removed, and naturally the bunker capacity of the vessels has been increased. But it is in the internal arrangements that the most important, as well as the most obvious and probably best appreciated changes have been made. As originally designed the vessels had no third-class accommodation. Now a portion of the second class has been converted into third-class, and a third-class dining saloon has been fitted. Moreover, although these cabins have changed their designation, they remain in fittings and equipment precisely as they were. Owing to this fact it will be difficult to equal anywhere the accommodation provided in these steamers for the emigrant class-

Again, several first class cabins have become second with equally good results to the travelers in both classes. There is accommodation for 350 first-206 second-class, and 570 third- and these, with a crew of 270, the number for which provision is made on board to 1,396. The convenience and comfort of all have been studied in an exceptional degree, and public rooms and state rooms alike have been constructed and equipped to meet all the needs of the oversea voyageur. Cold storage, refrigerating apparatus, submarine signalling, wireless telegraphy, the Clayton fire extinguisher—these are some of the features of these fine liners. Add to these the fact that they are turbine propelled and are capable of a sea speed of about 20 knots, and it will

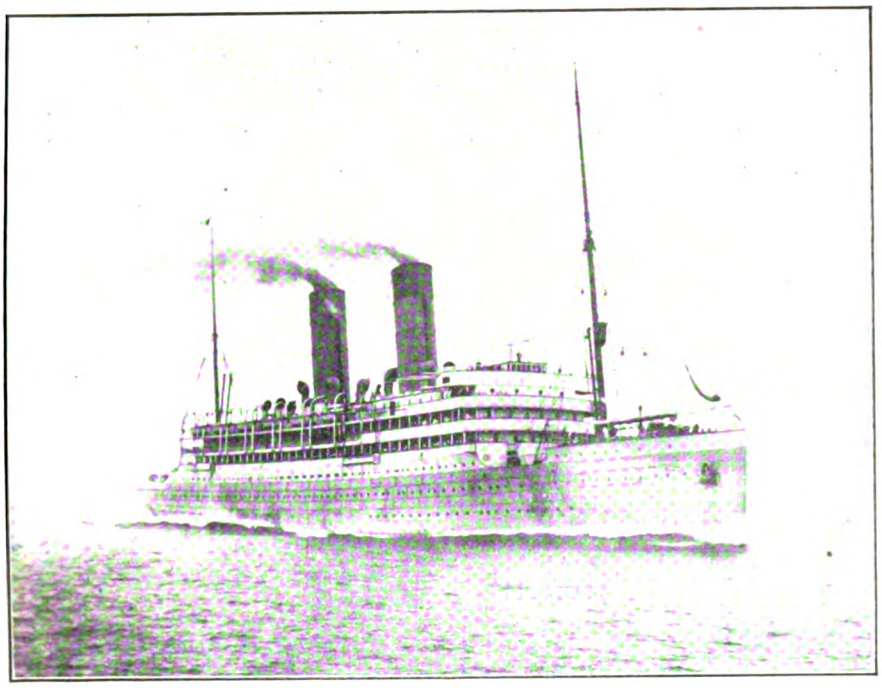
Generated on 2024-07-25 20:40 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

be realized that the Royal George and Royal Edward place the Royal Line at one bound in the foremost of the passenger lines that cross the Atlantic to Canadian ports.

The following is a more detailed description of the vessels:

The Royal Edward and Royal George were built by the Fairfield Ship Building Co., Glasgow. Their chief dimensions are as follows:

Length over all	545 ft.
Breadth	60 ft. 3 in.
Depth from keel to shelter deck.	38 ft.
Tonnage	12,000 gross
H. P.	18,000



NEW STEAMER ROYAL EDWARD FOR CANADIAN SERVICE.

Every requirement of Lloyd's and the board of trade has been more than met with. The Royal Edward is subdivided into ten compartments by water-tight bulkheads, while a cellular double bottom has been fitted from stem to stern.

In all there are seven decks, beginning with the lower, and rising in succession to the main, upper, shelter, bridge, promenade and boat decks.

Immediately abaft the officers' quarters is a cafe, 63 by 40 ft. It is designed in the Regence style, panelled in oak, and with a seating accommodation for 85 passengers. The roof of the cafe forms the flying-bridge, upon which have been placed the chart and wheel houses, the bridge, of course, being designed exclusively for navigating purposes. At the other end of the boat deck is a large office for the reception and despatch of Marconi wireless telegrams.

Below, on the promenade deck, is a long steel deckhouse, built in island fashion, in the center of which has been placed the music room, which is 45 by 30 ft. This is a charming room, furnished in the Louis XVI style, and finished in white. In the center of the room is a large well, which partly lights the library and the dining saloon on the deck below.

Forward and aft of the music room are groups of state rooms, arranged to accommodate two or three persons in, each, and in all 133 first-class passengers. A portion of this vast deckhouse has been divided up into suites, containing sitting rooms, bedrooms and bathrooms, all self-contained and fitted in the most delightful and luxurious manner.

The construction of the bridge deck is very similar, and on this deck is the main entrance to the grand staircase, which provides ample, easy and well-lighted access from deck to deck. An electric passenger lift also links up all seven decks. On the bridge deck is the library, which in size resembles the music room; but in style it is Regence, rich tapestries being hung against the dark oak panelling. Further aft is the smoking room, 50 ft. by 40 ft. This is a magnificent and artistic apartment, which has been ingeniously mapped out with little bays, in which small groups of people can enjoy the society of their own particular friends. The walls and ceiling are finished with oak, and the design is of the Elizabethan period, the whole scheme being carried out systematically down to the minutest details of upholstering.

Indeed, the charm of this vessel largely lies in the variety of its design, and the completeness of each variety. There is none of the dead sameness that is too often the characteristic of even the largest of ocean liners. The eyes are refreshed as one passes from room to room, and a tour of the vessel, apart from the delight that it affords, really furnishes quite a study in the architecture and house furnishing of different well-defined and famous periods in history.

Between the library and the smoking room are further groups of state rooms, which accommodate 107 first-class passengers.

The shelter deck is for the most part allotted to public rooms, and in this respect must be regarded as the most important deck of the ship. On it are arranged not only the first-class dining saloon, but also the second-class dining saloon, the second-class "social hall," and the second-class smoking room.

Also on this deck, just aft of the bridge, and in the center of the ship, is the children's dining saloon, a dainty place richly furnished and bright with white enamel work. On either side of the children's saloon are groups of state rooms arranged in island fashion. Here families of children can be accommodated in little flats all of their own, and here again the endless variety of the ship still has play, the panelling and the furniture and the fittings of every suite being different.

It is the first-class dining saloon, however, that is undoubtedly the most striking apartment of all. It occupies the whole breadth of the ship, and is 77 feet in length. The design is of the Georgian period, and in all 266 persons can sit down at one time.

The usual long, desert-like stretches of tables are entirely absent. The deck is dotted with the small tables one is now accustomed to see in all restaurants, while along the side of the saloon are little bays constructed to accommodate parties of five. The lighting, also, is excellent, as in addition to the many large portholes, an elliptically-shaped well rises up through the various decks to the weather deck, admitting plenty of sunshine through a vast dome. White is the color scheme of the entire saloon, while the polished teak floor sets off the richness of the velvet upholstering.

No detail, indeed, however minute,

Generated on 2024-07-25 20:41 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

has been neglected on this ship. There are huge stores, hair-dressers' shops, a dispensary, and ample room for passengers' spare luggage, so arranged that the passengers' access to their luggage is easy Even the special machinery which has been laid down in order to deal expeditiously with passengers' luggage is perfect of its kind.

Very special care and thought has been bestowed on the subject of ventilation. With the "Thermo-tank" system the vessel can never be uncomfortably hot or uncomfortably cold, and is never stuffy. "Thermo-tanks" are distributed over the various decks to collect fresh air from the open, and, when charged, can reduce or raise the temperature of the air to any degree desired. This done, the air is distributed by fans through trunks leading to every section of the vessel. The tanks are not only capable of renewing the air 12 times in an hour, but could also maintain the air at 60 deg. Fahr., with a surrounding atmosphere at zero. In addition to this, the ship has been furnished with scores of little electric exhaust fans.

The refrigerating plant for the preservation of provisions is the best that can be got, while the electric light plant is so complete that every state room is fitted with ladies' electric curling tongs.

The ship is practically as safe from fire as a ship can be, for she is fitted with the Clayton fire extinguisher, an apparatus which is capable of discharging in any part of the ship 25,000 cu. ft. of fire-extinguishing gas per hour by means of pipes laid on to each and every room. The machine extracts the air of a compartment, simultaneously injecting sulphur dioxide. The fire extinguished, the sulphur dioxide is withdrawn and fresh air pumped in. Thus this machine can be used not only for extinguishing fire, but for airing the ship.

For the further comfort of all on board a constant supply of water, salt and fresh, hot and cold, has been laid on all over the vessel.

Reinforced Concrete Barges for Panama Canal

REINFORCED concrete as material for vessel construction has been used abroad, notably on the Tiber, for some years, but little or no attempt has been made to employ it in this country. A few weeks ago *The Canal Record,* published by the Isthmian canal commission, contained a brief account of two concrete barges building for work on the canal. This description has now been amplified in *The Engineering Record,* from which this article is excerpted. It appears that it was necessary to provide, on very short notice, a floating support for three dredging pumps. There was not enough lumber, nor plates and angles in stock, to build wooden or steel barges on the isthmus. To order material from the United States meant a loss of time of at least one month, and two or three times as much were a contract for the complete barges to be let. On the other hand, there was a large supply of high-grade cement in stock, sand and crushed rock were being delivered daily to the locks in such quantities that a car load could be easily diverted to some other purpose without inconvenience, and sufficient steel bars for reinforcement were on hand to begin work, and the rest could be ordered and shipped while Barge No. 1 was under construction.

Using the actual costs of materials delivered on the job, a preliminary estimate showed that there would be needed 120 bbl. of cement, at $2.50 = $300; 26 cu. yd. of rock, at $1.60 = $41.60; 36 cu. yd. of sand, at 95 cts. = $34.20; 23,000 lb. of steel, at 3 cts. = $690; so that the cost of material for one barge would be about $1,065.80, which compares not unfavorably with the cost of any other barge of the same size.

Wooden or steel barges could be built or erected (if sent knocked-down from the United States) only by skilled mechanics, who are paid high wages on the isthmus, and whose number is only sufficiently large to attend to the repair and maintenance of the floating equipment. Therefore, none of these men could be spared for the new work. On the other hand, there are so many form carpenters and experienced concrete foremen employed in the construction of the locks that one of them, with his gang of inexpensive colored laborers, can easily be spared for some time.

There is another important item in favor of concrete as material for these pontoons, viz.: The greater mass compared with that of a steel barge, which will help to resist vibration caused by the operation of the pumps and the rough handling to which the shell of a dredge is naturally exposed.

It should be finally noticed that the first cost of a reinforced concrete barge is practically the only cost; whereas, the expense for paint, calking, etc., would keep on adding to the original cost of steel or wooden barges.

Description of the Barge.

The barge is rectangular in plan, 64 ft. long, 24 ft. wide, and has a 7-ft. rake at the bow and stern to facilitate towing. The bottom is flat, while the deck has a sheer lengthwise of 4 in. and 1-in. crown crosswise, so that the depth of the hull varies from 5 ft. 4 in. to 5 ft. 8 in.

Two bulkheads, 3 in. thick and spaced 8 ft. on centers, extend from bow to stern, forming, with the 2½-in. side walls, three equal compartments. The bulkheads and side walls, stiffened at intervals of 10 ft. by posts 10-in. square, are each to be considered as the web of a girder, whose chords are formed by a line of longitudinal 10 and 11½-in. beams in the deck and floor of the barge respectively. At the posts, the top and bottom chords of the girders are cross-connected by 10 and 11½-in. beams with heavy knee braces. The system of beams subdivides the deck and bottom into 8 x 10-ft. panels, which are covered by 3-in. and 2½-in. slabs, respectively.

Character of Reinforcement.

The following reinforcement is being used: In the bottom slab, ½-in. mesh No. 12 wire cloth and ½-in. square bars, spaced 12 in. on centers crosswise and 9 in. lengthwise. The same reinforcement is used in the 2½-in. side walls. In the deck ½-in. square bars are spaced 8 in. crosswise and 6 in. lengthwise. Deck and bottom beams have the same reinforcement, viz.: Three ¾-in. square bars on the tension side, one of which is bent up at the quarter points and carried over the supports. The posts are reinforced by four ¾-in. square bars, 2 in. from the corners, the knee braces by two ½-in. bars, while ½-in. square bars are placed vertically and spaced 8 in. on centers in the longitudinal bulkheads.

Six round 21-in. hatches are provided, one at each end of the three compartments, to give access to, and allow inspection and ventilation of, the interior. Wherever a hatch is located the slab is strengthened by an additional small beam. Near each corner of the deck a mooring bit is anchored by six ¾-in. countersunk bolts through the slab to a heavy washer plate. A 12 x 6-in. timber fendner is fastened flush with the deck to the sides and ends of the boat.

The dredge pump with its motor is set up about midship and at right angle to the longitudinal axis of the barge. Thus, the suction pipe reaches

Generated on 2024-07-25 20:41 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

over one side, while the discharge pipe run fore and aft. The cast iron base plate is fastened to two 12 x 12-in. timbers, lying across the deck, these timbrs in turn being bolted to four 8 x 12-in. stringers lying lengthwise below the deck, thus anchoring the machine to two lines of deck beams. The priming pump sets on one side of the main pump, the electrical apparatus and switchboard on the other, both being on the same side of the longitudinal center line of the barge as the main motor. In this manner the weight of the pipes and the action of the suction is counterbalanced. A light shed protects all machinery and the operator from rain and sunshine.

The barge has to carry the dead and live loads indicated in the following table.

The displacement, light, is, therefore, 3,678 cu. ft., and loaded, 4,624 cu. ft., making the draught of the barge, light, 2 ft. 9 in., and loaded, 3 ft. 5 in.

TABLE OF LIVE AND DEAD LOADS.

	Pounds.
51 cu. yd. concrete	206,900
Steel reinforcement	22,600
Pump, with base plate, etc	29,600
Motor	12,800
Priming pump, with motor	1,300
Electrical apparatus	5,000
Mooring bits, house, 12 ft. of 20-in. suction pipe with foot valve, 30 ft. of 20-in. discharge pipe and water in pipes and pump	10,300
	288,500

Cement, sand and rock are the same high-grade materials that are furnished for the locks, the cement used being Atlas Portland. For the shell, concrete is mixed in the proportion of 1 cement to 2 sand; for the deck and interior members in the proportion 1 cement to 2 sand to 4 rock. All mixing is done by hand.

The reinforcement consists of corrugated square bars with high elastic limit, manufactured by the Corrugated Bar Co.; annealed wire No. 12 is used for tying, and the wire cloth is made by the Clinton Wire Cloth Co.

How the Barges are Built.

The barges are being built, one at a time, and launched on the west bank of the canal at the place where the lower chamber of the Miraflores lock will be located. This locality is accessible by a spur track.

A platform was built on cribbing with enough height underneath for men to work and to build the ways for launching. On this platform sheets of wire cloth are laid crosswise and bent up so as to extend the total height of the side walls. The sheets are 36 in. wide and are securely tied together where they butt in the length direction of the barge. On this wire cloth are tied the bars that form the reinforcement of the bottom. The cross bars are made up of one piece 14 ft. and one 22 ft. long, spliced by overlapping 1 ft., the splice being alternately under the port and starboard length girder. Five ft. at each end of these bars are bent up and form the reinforcement of the sides. The longitudinal bars consist of 21-ft. pieces, spliced at every second cross beam by overlapping 1 ft.; the splices are staggered. At the ends of the barge these bars are bent up to conform to the outline of the rakes. The arrangement of the longitudinal bars in the side walls is similar. At the center lines of all beams stirrups are hooked to the main bars; they are 5 16-in. rods, spaced 9 in. centers for the longitudinals and 12 in. for the cross beams.

How the Shell is Formed.

The concrete shell is formed by plastering the steel skeleton. For that purpose the reinforcement is suspended on wooden beams, sections 10 x 24 ft. at a time, and the sheeting of the platform is removed. The plaster can be applied from the outside and pressed well into the wire mesh. As soon as the initial set takes place a high finish is given to the lower face, and finally, the supporting platform is put back in place. The progress is so arranged that a day's work ends under a line of cross beams and takes in the whole width of the bottom. After this first coating, about ½ in. thick, has set for three days, the plastering of the inside is started. Here the joint between two days' work is located half way between two lines of cross beams. The plastering of the sides is performed in a similar manner. To make the mortar set faster, thereby facilitating the plastering, and to produce a denser mixture, one-quarter of the cement has been replaced by lime.

Next the forms for floor beams are erected, and the steel for floor beams, posts, knee braces and bulkheads placed. This done, the floor beams can be concreted. Then the forms for posts, bulkheads, deck beams and deck slabs are put up, the beam and slab reinforcement laid and tied. The longitudinal bars in the deck are 21 ft. long, and have their splices arranged like the bars in the floor; the cross bars are 26 ft. long and have 14 in. at each end bent down into the side wall. In laying concrete a day's work is stopped for the beams, in the middle of a span, and for the slabs, at the center line of a beam.

All forms were built in sections, the pieces being small enough to pass through the hatches, and the same forms will be used for all three barges. From the start, concrete was protected by heavy canvas against the hot sun, and was kept moist by sprinkling with a hose.

Work on the first barge was begun Feb. 18, 1910, and was completed on April 8, 1910. Eleven days afterwards, on April 19, 1910, she was launched successfully, the launching being done sidewise. Immediately after the ways were cleared, work on the second barge was commenced; but the latter will differ somewhat from the first, as several changes have been made in the design, based on experience gained. Most of these changes tend to lighten the boat and are incorporated in the foregoing description.

PRACTICAL RESULTS OF THE MONITORIA.

Some practical results of the working of the Monitoria which was illustrated and described in a recent issue of THE MARINE REVIEW are now available. She has been through some very rough weather in the voyages she has made, and has proved herself to be a splendid and seaworthy vessel in every respect. Comparing voyages, under the same weather conditions, with similar vessels of the ordinary type and the same dimensions, it is found that the latter have steamed 7¾ knots an hour and burnt 15 tons of coal, whereas the Monitoria has carried about 100 tons more cargo, owing to her patent construction, and steamed 7½ knots with a coal consumption of only 10 to 11 tons. In smooth sea, during these voyages the Monitoria did 8¼ knots with a coal consumption under 11 tons. This is a remarkable improvement upon the ordinary plain ship, considering the Monitoria has a greater displacement. It is clear, as the naval architect for the Monitor corporation, Arthur H. Haver, has pointed out, that the corrugations along the vessel's sides bring a better supply of water to the propeller, free from eddies, and reduce the amplitude of the waves, and send them more swiftly past the ship, reducing also the height of the bow and stern waves. There is another remarkable and important result from the adoption of the Monitor patent of construction, namely, an entire absence of vibration on board the Monitoria, and what this would mean in point of comfort to passengers upon ocean liners is something that the owners of such vessels would do well to consider.

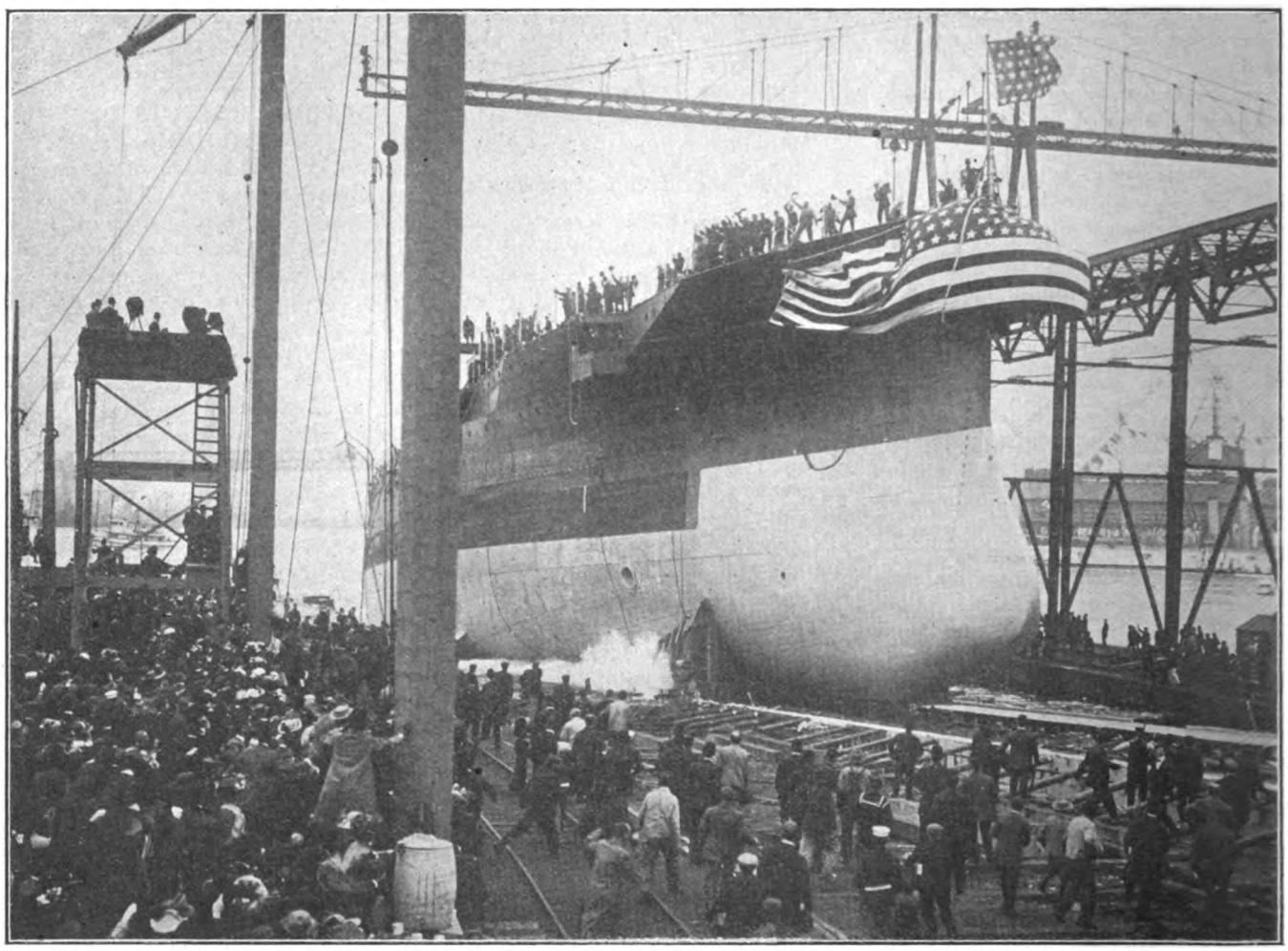
A gentleman who went in the Monitoria to the Baltic in April wrote the owners from Copenhagen as fol-

Generated on 2024-07-25 20:41 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

lows:—"I wired you that the steamship Monitoria reached the Scaw in 47½ hours from Blyth, when we met strong southern winds and currents; still we got to Elsinore in 63½ hours. We ran close in, got a boat, and I just caught a good train, landing me in Copenhagen 65¼ hours after leaving Blyth. The vessel behaves splendidly, there was a heavy northerly swell, but she rolled very gently, and no matter how the swell caught her, there was not one single kick. Nothing is, nor ever has been, fixed upon the cabins, not even the inkstand, and they have passed through some very heavy weather. The Monitoria is like a gull on the sea, she seems to be in harmony with the waves and to take them easy and kindly. The corrugations along the sides of the ship have certainly a wonderful effect; whether you look at the stern alongside the vessel or at the stern, everything seems smooth and easy, and you can see the propeller working when the ship is running at full speed. I never saw that in any other ship during over 40 years experience. It has been truly a pleasure to me to make this short run, and am sorry it was no longer. I may add that when the Monitoria went full speed astern at Blyth, it was quite extraordinary to see the way the water followed the grooves and rushed out at the stem."

BATTLESHIP FLORIDA LAUNCHED.

The battleship Florida was launched from the Brooklyn navy yard May 12. The Florida is a sister ship of the Utah, building at the yard of the New York Shipbuilding Co., Camden, N. J., which was launched Dec. 23 last. The keel of the Florida was laid in March, 1909. The Florida is 521 ft. 6 in. long, 88 ft. 3 in. beam with a mean draught of 28 ft. 6 in. when carrying a two-thirds supply of fuel and stores. In external appearance, she will resemble the North Dakota with two smoke stacks, two lattice observation masts and five turrets. She will have turbine machinery and water tube boilers. The turbines will be of the Parson type and will consist of ten turbine units on four shafts. Her installation of 12 Babcock & Wilcox boilers will be placed in three watertight independent compartments, each with a double fire room. The contract calls for a maximum speed of 20¾ knots on a run of four hours.



LAUNCHING THE BATTLESHIP FLORIDA AT THE BROOKLYN NAVY YARD.
Photo by E. Levick.

The rate war between the Inland Navigation Co. and the Kitsap County Transportation, of Seattle, which has continued for the past six months, has been ended and the old rates are again in force to the various points on Puget Sound.

The Alaska Barge Co., recently incorporated by George M. Savage and W. R. Nichols, of Tacoma, has four barges in use freighting for the Northwest Constructing Co.

The Oregon & Washington Ferry & Navigation Co., 377 Railroad avenue, Seattle, will extend its wharf at the end of Marion street to a length of 600 feet.

Generated on 2024-07-25 20:41 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

The Columbia River Stern Wheel Tow Boat C. Minsinger

UP to recently it has been the practically invariable custom in towing on the Columbia river to tow either on a long hawser or alongside. This practice grew, probably, out of the fact that the great majority of the towing in the early days consisted of booms of logs which it was more expedient to tow astern.

The stern wheel steamer C. Minsinger, illustrated herewith, is the first tow boat on the Columbia river designed to push her tow ahead as is customary on the Ohio and Mississippi rivers. This boat represents the highest development of the stern wheel towboat on our Pacific coast rivers.

The hull and superstructure is built of native fir throughout. The boat is 150 ft. long, 30 ft. beam and 7 ft. deep. The hull has the form of stern common to stern wheel steamers and three rudders are hung under the transom just forward of the wheel. The stern wheel is built of wood with hexagon shaft, and is 17 ft. in diameter with 20 ft. face.

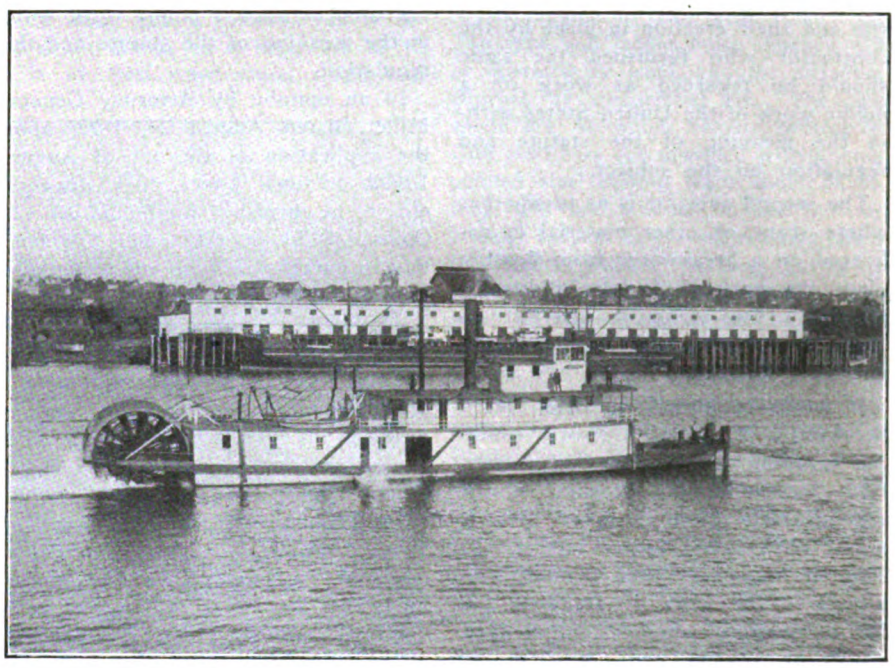
The engines are the high pressure, non-condensing, horizontal paddle wheel type, common to this class of vessel, with cylinders 13 in. in diameter, 6 ft. stroke. Each cylinder is fitted with four independent poppet valves, two admission and two exhaust, and with Rees' patent valve gear, which takes the valve motion from the connecting rod, thus doing away with eccentrics. The engine indicates about 250 H. P. and is usually run at from ⅜ to ½ cut off with 230 lb. boiler pressure, under which conditions it is said to turn the wheel from 22 to 26 revolutions per minute, giving the boat a speed, without tow, of from 15 to 16 miles per hour.

A locomotive-type boiler, built by James Monks, Portland, Ore., is installed. Crude oil is used for fuel, two steam blown burners being used. The oil is carried in six steel tanks with a total capacity of 210 barrels. The oil consumption is stated to be from 1.5 to 3.0 barrels per hour (42 gallons per barrel) depending on working conditions.

An independent steam capstan, steam steering gear and electric lights are also fitted.

The tow is lashed ahead of the boat. From two to three barges of sand are handled each trip. Each barge is 150 x 30 ft. in size and carries 390 cu. yd. or about 580 tons of material.

The boat was designed by Messrs. Minsinger & Bunton of Portland and was built by the Portland Shipbuilding Co. The engines were designed and built by Jas. Rees & Sons, Pittsburg, Pa. The steamer is owned and operated by the Star Sand Co., Portland, Ore.



COLUMBIA RIVER TUG C. MINSINGER.

EIGHT-HOUR LAW IN GOVERNMENT WORK.

George B. Davis, judge advocate general, has recently delivered an opinion on several phases of the eight-hour law as applied to government work which is of great interest to the marine trade. The opinion has been concurred in by the secretary of war and transmitted to all government engineers for their guidance. The opinion is as follows:

The opinion of this office is desired as to the application of the eight-hour law under the following circumstances:

a. Where lock gates are delivered by a contractor in sections, and erected in place, does the law apply to the assembly of the sections at the lock site and to the erection of the gates in the lock by the contractor?

b. Where stone or other material is delivered on a breakwater from floating plant, does the work of placing, bedding or arranging the stone or material on the breakwater come under the provisions of the law?

c. Does the law apply to the work of unloading, assorting and piling supplies or materials, such as lumber or cement, delivered by a contractor on land or in a warehouse owned or leased by the United States?

d. Where a vessel belonging to the United States is moored to a dock, wharf or landing, owned by the government, does the work or repairs on such vessel, by a contractor, come under the provisions of the law, the vessel remaining in the charge or custody of the United States during the continuance of such repairs?

The law restricts the hours of labor of any mechanic or laborer who may be employed "upon any of the public works of the United States," etc., to eight hours in any one calendar day; and in an opinion of this office, dated July 27, 1909, the view was expressed that the law could not be evaded by employing them for less than eight hours on the public work and then putting them to other work in such manner that the aggregate of the two periods would exceed eight hours in one day. The fact that the laborer is employed on the public work would, it was said, bring him within the terms of the law, so that he could not be required to work in excess of eight hours in any one day, whether the entire period was included in the public work or not.

Generated on 2024-07-25 20:41 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

Lock Construction Public Work.

In the light of these remarks the first question raised should, in the opinion of this office, be answered in the affirmative. There can be no question but that the work of lock construction is a public work of the United States and within the terms of the law. Where the parts of lock gates are sent from the factory in sections it is believed that the work of assembling the sections at the lock site and their erection in place by the contractor who furnished the same should be regarded as work on a public work of the United States within the meaning of the statute and regulation on the subject.

The second question is as to whether where stone or other material is delivered on a breakwater from floating plant, the work of placing, bedding or arranging the stone or material on the breakwater comes under the provisions of the law.

It has heretofore been held that a breakwater is a public work within the meaning of the law and regulation; but under the decision of the supreme court in the case of Ellis et al. v. The United States (206 U. S., 246), it was held that persons employed in the work of dredging and for excavation, whether on dredges, scows or vessels, are not "laborers and mechanics" within the meaning of the act of August 1, 1892 (27 Stat. L., 340), but are to be regarded as seamen employed on vessels within the statutes and decisions regulating such employment. If the persons who are regularly employed on the floating plant do the work of placing, bedding or arranging the stone or material on the breakwater, simply in connection with the unloading of the same from the floating plant, it is not believed that such work should be regarded as covered by the statute and regulation. However, if one person is continuously employed in such work of placing, bedding or arranging the stone or other material on the breakwater, it would seem that he should be regarded as for the time engaged as a laborer and could not be required to work in excess of eight hours in one day.

The Third Case Not Within the Law.

The third case presented is that of the application of the law to the work of unloading, assorting and piling supplies and materials, such as lumber or cement, delivered by the contractor on land or in a warehouse owned or leased by the United States.

If the materials are purchased by the United States or by a contractor on a public work, from an independent contractor as supplies and materials to be put into the actual work of construction—such materials being delivered by the independent contractor who furnishes the same under his contract and is required to deliver the same, it is not believed that the unloading, assorting and piling of the material by the laborers employed by such independent contractor would be regarded as upon a public work within the meaning of the statute and the regulation.

In an opinion by Attorney General Miller, dated August 24, 1892, upon the application of the act of August 1,1892, to lock boxes, lock drawers, etc., to be furnished for public use (20 Opins., 454-5), it was said: "To hold that in purchasing materials to be used in the erection and fitting up of public buildings the requirement that such materials shall only have been manufactured by persons working eight hours a day would render this law impossible of execution. If the law is applicable to the goods you name, it is not seen why it would not be equally applicable to a purchase of spikes, nails, lumber, brick, etc., entering into the construction of government buildings."

It will appear, therefore, that the attorney general did not regard the purchase of materials as such from an independent contractor as within the meaning of the law—such materials being a subject of commerce and purchased as such.

I am clearly of opinion that the delivery of material on the grounds of the United States by the laborers of the contractor furnishing the same should not be regarded as covered by the law and regulation.

Repairs on Vessels.

The remaining question raised is whether repairs on a vessel belonging to the United States and moored to a dock, wharf or landing owned by the government—the work of repair being done by a contractor—is to be regarded as coming under the provisions of the law; such vessel remaining in the charge or custody of the United States during the continuance of such repairs.

In an opinion of this office, dated February 9, 1909, this office concurred in the view of the chief of engineers, that where a vessel was temporarily withdrawn from public work, and was being repaired at the plant of the company, the eight-hour law did not apply to the work. In that opinion this office said: "In the opinion of this office, dated February, 27, 1907, in the matter of repairs to certain dredges employed in connection with the improvement of the St. Johns river, Fla., it was held, following the opinions of the attorney general respecting repairs to naval vessels, that the work thereon was not on public works of the United States within the meaning of the law, and that as the work was under the control of the contractor the law and regulation did not apply. In that opinion it was said:

"'Where a contract is given for repairs to a government vessel, the repairs to be made at a government wharf or under conditions which continue the vessel in the active control of the government authorities, the eight-hour law may perhaps apply; but when, as in the case before us, the vessel is turned over to a contractor for repairs, at the contractor's plant, and so, for the time being, out of the active control of the government, I am of the opinion that the restrictions of the act of August 1, 1892, do not apply.'

"It is not believed that the fact that the vessel remained in the charge or custody of the United States during the continuance of the repairs should be regarded as material to the question. The work of repairs to such vessel would not, under the views of the attorney general, be on a public work of the United States within the meaning of the law. The term 'public work' has reference to some fixed work of public utility, and does not apply to vessels."

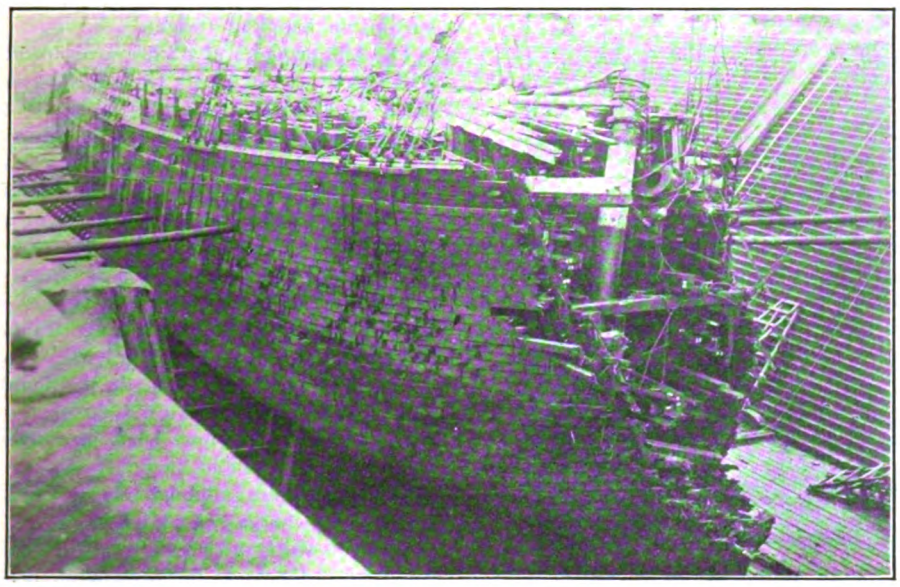
MARINE INSURANCE ON PACIFIC COAST.

The heavy losses in Alaska the past year, about $600,000, have caused considerable activity among the indemnity and marine insurance men. Losses of the Yucatan, Farralon and Ohio have been of considerable amounts. Rates to Alaska are considerably higher than local rates or other coastwise rates because there are no adequate facilities and no accessible ports for repair work. For a time, during the spring, one company operating vessels to Alaska, ran without insurance of any kind. Rates have now been readjusted for the season with very little advance. To southeastern Alaska an advance of one-eighth to one-fourth of 1 per cent and to Nome and Yukon river points, one-fourth to three-fourths of 1 per cent is general.

Generated on 2024-07-25 20:41 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

AN ODD ACCIDENT.

There happened in Chesapeake bay off the coast of Virginia a decidedly odd accident, as the accompanying photograph shows. A particularly dense fog had settled down on the bay, making water traffic a very hazardous undertaking. The schooner Asbury Fountain, of New York, loaded with lumber (providentially, as it turned out afterwards, for the schooner) had anchored in the lower part of the bay. Bound southward from New York came the steamer Jefferson of the Old Dominion fleet. Suddenly and without any warning the steamer loomed up on the port side of the schooner. Before her headway could be checked to any appreciable extent she had struck the schooner a blow on the port bow at about an angle of 60 degrees. As will be seen from the photograph that part of the schooner forward of the foremast from the keel clear up to the deck was completely cut away. But for the fact that the foremast was stepped as it was, it would have been carried away, and might have resulted in loss of life on board of the steamer. The deck house abaft the foremast can be seen in a very settled position.



THE SCHOONER ASBURY FOUNTAIN IN DRY DOCK AFTER THE COLLISION.

After the accident the schooner was towed to the yard of the Newport News Ship Building & Dry Dock Co., at Newport News, Va., and docked. Another curious feature, as seen from the photograph, is the fact that the schooner was docked stern foremost instead of bow first, as is the usual practice.

Owing to the character of the cargo, lumber, the schooner sank only to a little above the deck line.

The ragged ends of planking were cut off square and the opening boarded up and made watertight with oakum and pitch. The vessel was then towed bow on up to New York, to which port her cargo had been consigned. Fortunately no lives were lost.

SUCTION DREDGE SHUNIAH.

The suction dredge Shuniah, which was launched from the yard of the Polson Iron Works, Toronto, on May 14, for the Great Lakes Dredging Co., is said to be the largest dredge built in Canada. The dredge is 125 ft. long, 40 ft. beam and 9 ft. deep. It is designed to dredge to a depth of 35 ft. It is of steel construction throughout with deck house 96 ft. by 32 ft. by 9 ft., having accommodation for a crew of 25 persons. According to the *Railway and Marine World*, the machinery includes dredging pump with 22-in. inlet, and discharges and runners 78 in. diameter, pump shaft 8 in. diameter, made in two parts to facilitate removal, coupled by large clamps, and supported external to the pump. The pump is connected to a marine type, vertical triple expansion engine, with cylinders 15, 22 and 36 in., by 18 in. stroke, capable of running at 200 R. P. M., and of developing 700 I. H. P., with steam supplied at 190 lbs. pressure. The boiler is of the safety water tube marine type, equipped with mechanical stoker and forced draught. The cutter head consists of a single steel casting, 70 in. diameter by 56 in. long, with eight extra heavy spiral blades, adapted for hard digging. The cutter shaft is driven through three sets of gears by means of a 10 x 14 double reversing steam shovel type of engine in the hold. The gear driving consists of, for the first and third pairs, pinion and spur, and for the second pair, mitres, mounted on a single steel casting base to prevent spreading. The suction pipes consist of lap welded steel tube, 20 in. diameter, connected through cast steel swivel elbows. A five-drum winch, driven by 8½ by 8 in. double-cylinder reversible engine, is also provided. Two drums 16 in. diameter will be used for raising the spuds and one similar drum will raise the digging ladder; two 24-in. drums will be used to operate the bow swinging lines. The drum shaft is of hammered steel 6 in. diameter, connected to the engine by two gear reductions. The spud and ladder hoist clutches will be operated by hand, and the swinging clutches by compressed air. The two spuds are of wood, heavily reinforced with steel bars and provided with a wing pointed steel casting point about 54 in. long, and are attached to the hull by circular keepers to prevent rotation when the dredge swings. A steel gantry is also provided to raise the spuds to the level of the bottom of the hull. The auxiliary pumps include two 7½ x 5 x 6 duplex feed pumps, and one 10 x 6 x 12 simplex pump for general purposes, operated by compressed air, supplied by a Westinghouse 11-in. air compressor, with the necessary tubes and flanges. A surface condensing outfit is also provided on account of the muddy water to be dealt with, to protect the boiler, etc. The dredge is equipped with a 15-k. w. turbo generating set for electric light and for the 14-in. searchlight. There is also being supplied with the dredge 3,500 ft. of piping and pontoons for transporting and discharging the dredged material at one operation without the use of scows.

ADOPTS OIL AS FUEL.

The Metropolitan Steamship Co., operating the turbine steamers Yale and Harvard between New York and Boston, has adopted oil as fuel for these steamers. The Yale underwent a trial test on May 19, running to the Ambrose Channel lightship with a party of guests. The test was successful in every way, though no attempt was made to force the steamer. The adoption of oil fuel was prompted by the short time in port in which to do coaling and by the incessant troubles with the firemen. In adopting oil fuel, the company used the Lassoe Steam Atomizing System burners, manufactured by H. B. Lassoe, and the installation was carried out by the W. & A. Fletcher Co., Hoboken, N. J., the builders of the vessels.

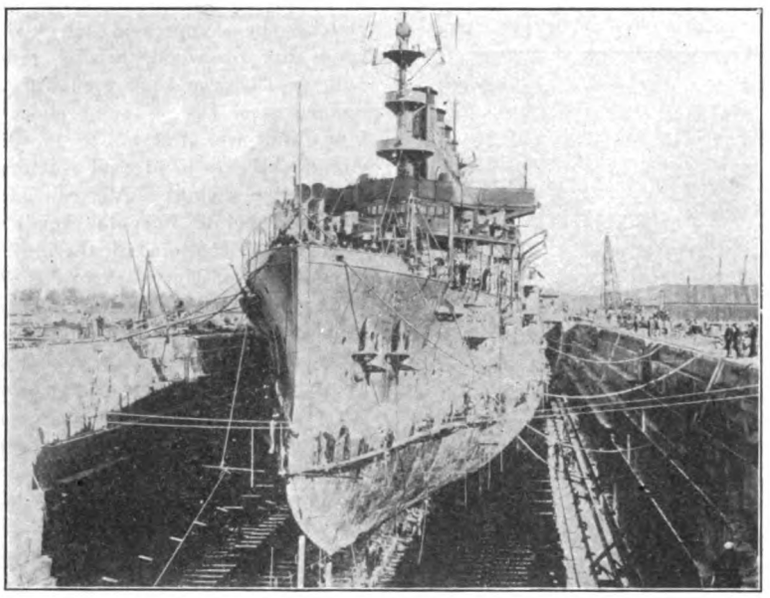
While burning coal, the steamers averaged 235 tons for the round trip and carried in the fire-room 30 firemen and 18 coal passers. The company anticipates that it will burn about 47,000 gals. of oil on the same trip, employing 12 men in the fire-room, which number may

Generated on 2024-07-25 20:41 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

be reduced as they become more familiar with the installation. The company does not expect to save any money by the change, deriving its main benefit from the cleanliness of the ships and less friction in the fire-room.

MARE ISLAND DRY DOCK.

The new dry dock at the Mare Island navy yard has been completed and accepted by the government. The cruiser California was the first vessel to enter the new dock. The event



CRUISER CALIFORNIA IN NEW DRY DOCK AT MARE ISLAND NAVY YARD.

was celebrated by a salute of cannon and a banquet to the officers of the ship. The dry dock was built by the Atlantic, Gulf & Pacific Co., and the Schofield Construction Co. The dock is 791 ft. long, being 120 ft. wide at top and 76 ft. at bottom.

SHIP BRAKE ON THE INDIANA.

Regarding the ship brake which has undergone tests by the navy department, the *Army and Navy Journal* says:

It is not likely the navy department will adopt the ship-brake, which has been tested on the U. S. S. Indiana. This was the device in which President Roosevelt took much interest and it has been urged upon the naval authorities as a valuable acquisition to vessels of war. While the final official report from the board of inspection has not been acted upon, it is understood that the department will decide that the advantages of the appliance do not offset the disadvantages; that the progress of the vessel can not be impeded with the promptness which has been claimed; that the ship is not turned in any shorter distance than with the rudder and propellers; that the addition of weight means 1 in. of draught, and that if installed it must be at the sacrifice of an equivalent in coal or ammunition. Looking at the subject in this way, the brake is not likely to be installed on board ships of war.

NAVIGATION ON THE RED RIVER OF THE NORTH.

The steamer Alberta, of the Winnipeg Navigation Co.'s fleet, Winnipeg, Can., is about to test the Red River of the North as a means of communication for large river steamers drawing 5 and 6 ft. of water. The Alberta leaves Winnipeg June 4 for Grand Forks, North Dakota, and after a short stay there, will continue to Fargo, if conditions are suitable.

This is a 500-mile trip, in addition to the 2,000-mile journey, made by the same steamer last year down the Saskatchwan river from Edmonton to Winnipeg. This necessitated a trip through the Grand Rapids at the mouth of the river, entering Lake Winnipeg. Several passengers and a cargo of freight were brought down and the company desires now to test the feasibility of a water route in the north 2,500 miles or more in length. If the route proves commercially practicable, additional stern wheel steamers will be built.

A Dominion government survey is to be commenced immediately to ascertain the necessity of improving the water route between Edmonton and Fargo, N. D. Explorers have reported that a 6 to 8-ft. channel can be maintained on this route at comparatively little expense as the river has a deep, broad channel nearly the whole distance. Ten thousand dollars has been appropriated for the survey, which will be made under the direction of L. R. Boligny, one of the sub-chiefs on the Georgian Bay Canal survey.

TOW BOATS ON UPPER MISSISSIPPI.

The new rivers and harbors appropriation bill carries with it an item of $500,000 for testing the plan proposed by Ray S. Reid, Wisconsin waterways commissioner, of using small but powerful tow boats with barges on the upper Mississippi river, such as are used on the Rhine, Elba and other German streams in handling freight.

The bill provides that the government shall have constructed two such tow boats of different modern types so that a thorough test of this mode of transportation may be made. Several barges will be handled by a single tug and they will probably be towed astern in a string. The barges and tugs will probably be built of steel.

Commissioner Reid made an extensive study of foreign methods of river transportation as a representative of Wisconsin, and later went with the National Waterways Commission over the European rivers. The tow boat plan has met with considerable favor from government engineers, although Major Chas. Kellar, in charge of Mississippi improvement work between St. Paul and St. Louis, adheres to the present method of employing large stern wheel steamers running without barges.

JUBILEE MEETING POSTPONED.

The Jubilee meeting of the Institution of Naval Architects, which was to have been held in London on July 5, has been postponed for one year owing to the death of King Edward. About 40 members of the Society of Naval Architects and Marine Engineers had signified their intention of attending this Jubilee meeting.

The Newport News Shipbuilding & Dry Dock Co. launched the steamer El Sol May 11, one of four it is building for the Southern Pacific Steamship Co. (Morgan Line). The new vessel is 430 ft. long over all and will be propelled by triple-expansion engines of 5,800 H. P. Miss Helen Torney, daughter of Assistant Manager Torney of the steamship company, acted as sponsor for the new vessel. The launching was informal and was the fourth at that yard this year.

The Santa Fe Railway has given contract to the Union Iron Works for the construction of a ferry boat for service in San Francisco Bay.

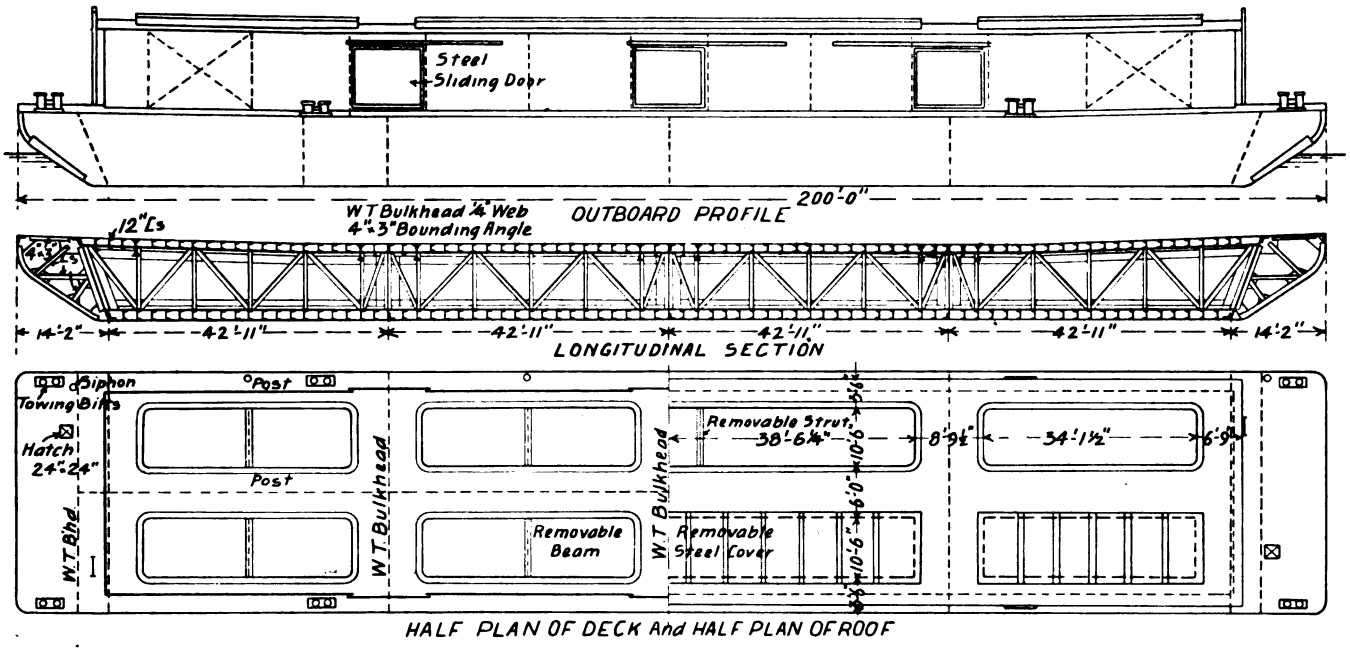
Generated on 2024-07-25 20:41 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

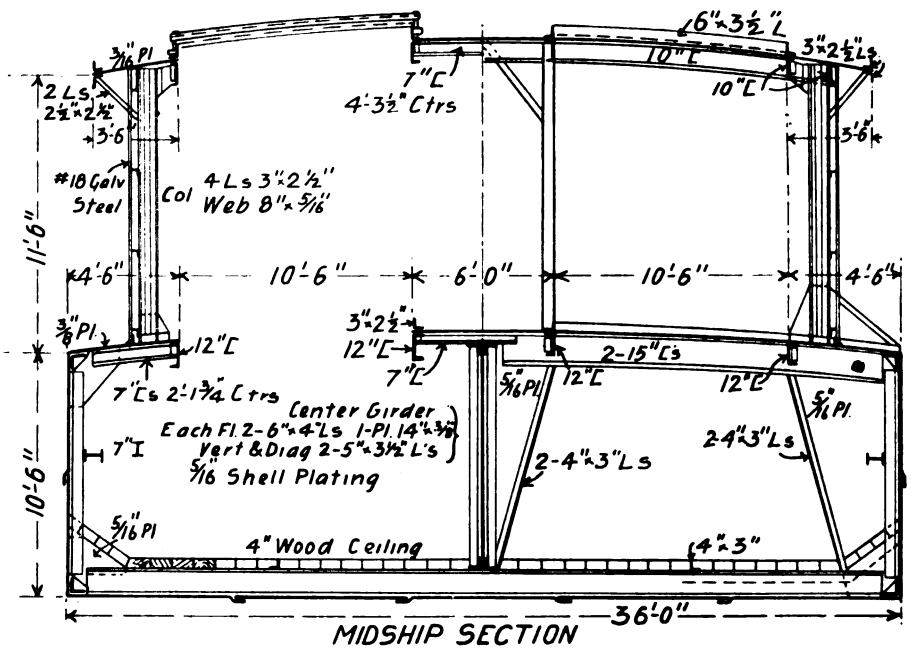
Steel River Barges for the Steel Corporation

THERE has been considerable interest manifested lately in the improvements contemplated by the United States government to make the inland rivers, particularly the Ohio and Mississippi, navigable during a longer period each year. In order to make these rivers of general benefit to shippers the first essential is continuous service and with such service will come the craft in which available cargoes can be transported. During the past few years a great many boats and barges of steel construction have been built and these have been successfully used by shippers of many different products. With practically no exception, such craft have been designed and built at the Ambridge plant of the American Bridge Co.

Barges have been built for transporting coal, oil, sand and other bulk commodities, for service at government dams and locks, for car ferries and numerous other transportation enterprises, but to no marked degree have steel barges been used to transport steel products. It is therefore of considerable interest to note that an order has just been placed with the American Bridge Co. for ten steel barges to carry the products of the subsidiary companies of the United States Steel Corporation from the Pittsburg district mills to Cincinnati, Louisville, St. Louis, Memphis, Vicksburg, New Orleans, and other ports on the Ohio and Mississippi rivers. Arrangements have been made with the Monongahela River Consolidated Coal & Coke Co. to tow the barges. It is not unlikely that before these barges are completed the number will be increased to 25. These are not the first steel barges to be used in carrying steel, as the fleet of steel coal barges built by the American Bridge Co. for the American Steel & Wire Co., of which 30 are now in commission, has for several years been carrying coal to the mills and billets from the Shoenberger Works to Rankin and Braddock on the return trip to the coal mines.

For some time past, steel rails, cotton ties, wire nails, pipe, etc., have been carried to southern ports by the Monongahela Consolidated Coal & Coke Co. for the constituent companies of the Steel Corporation in wooden model barges and some of these are still in service. The tonnage handled in this way has been from 40,000 to 65,000 gross tons annually. The maximum tonnage of steel rails alone has, however, been as much as 150,000 gross tons in one year. The average number of round trips for a barge at present is two per year, but with improved river conditions and continuous available water this might be increased so that each barge would make at least five round trips to New Orleans annually, and a correspondingly larger number to inter-





Generated on 2024-07-25 20:41 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

mediate ports. With such service, at least 250,000 gross tons of steel products could annually be distributed from the Pittsburg district to Ohio and Mississippi river ports. In fact, with improved facilities for shipment at the mills and for receiving, storing and forwarding at the important ports the volume of business cannot now be estimated, but it would not unlikely be close to one-half million gross tons.

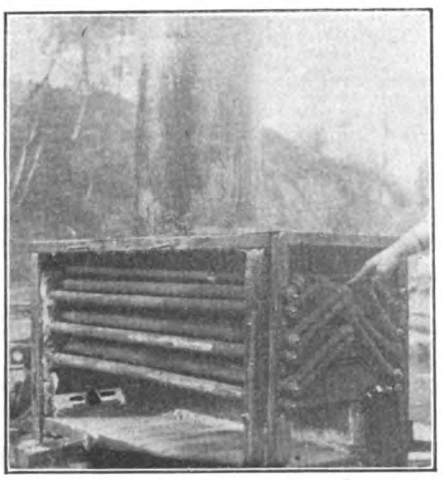
The accompanying drawing shows the type of barge being constructed. It is 200 feet long over all, 36 feet beam, and 10 feet 6 inches deep, the deck being crowned 8 inches at the center. The sheer at bow and stern is 18 inches. After due consideration, the scow type was adopted, the rakes fore and aft being the same. The barge is of steel construction throughout with the exception of a 4-inch wood floor in the hold. Plates, angles, beams and channels such as are ordinarily rolled are used throughout, no special section being employed. Five transverse water-tight bulkheads and a longitudinal truss divide the hold into eight compartments. Openings are located in the deck centrally over each compartment and are made large enough to receive rails 33 feet in length below deck.

A cargo box covers the greater portion of the deck, and this also is built entirely of steel plates and shapes with the exception of the sides, which are of galvanized corrugated steel. Three sliding doors on each side of the barge and one at each end permit of loading and unloading of nails and other wire products, ample space having been provided for trucking the material on the deck. Provision has also been made for loading materials through the roof of the cargo box, hatches having been provided immediately over the deck openings so that rails, pipe and structural material can be lowered by a crane through both openings into the hold. Provision has also been made for loading 60-foot rails, and 70-foot structural material through the two central roof hatches, this material, however, to be carried on the deck and not in the hold. The roof hatches have steel plate covers, amply stiffened with angles and designed so as to be weather-proof. As it is customary to carry mixed cargoes, it was necessary to make barges of sufficient cubical capacity to carry the bulky and comparatively light material such as field fencing and barbed wire, and when such cargoes are carried a cargo box will be required. For rails, pipe and structural material, if not over 33 feet in length, the hold only will be needed to carry the material, but for the long lengths of structural material and rails the deck will be used, although other materials can also be carried in the hold. The draught of the barge loaded to its capacity is 9 feet, provision having been made for 18 inches free board. The barge light will draw 26 inches.

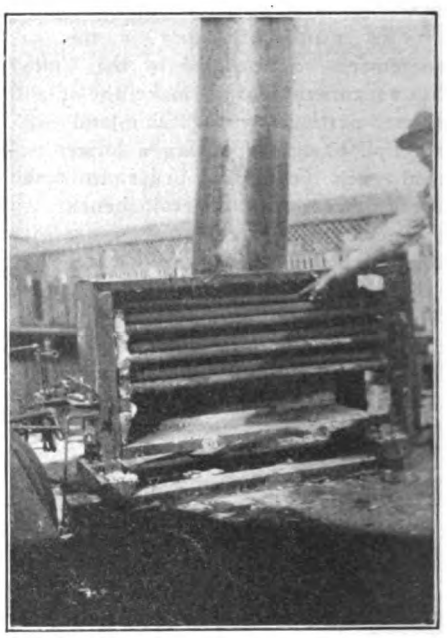
The American Bridge Co. has recently completed three barges for carrying bulk oil for service at New Orleans, ten coal barges, a wharf boat at Memphis, and two 14-car transfer barges in use at Profit island in the lower Mississippi river, conveying gravel for ballasting several hundred miles of track for the Illinois Central railroad. There are now being built four barges to be used by the United States government at Greenville, Miss., for river maintenance work and a steel floating dry dock also for the government at Vicksburg, Miss.

TALBOT STEAM BOILER.

A steam boiler, similar in general design to that used by the White steam automobile, has been perfected by Paul Talbot, of the Talbot Generating Co., of Seattle. Oil fuel only is used with the boiler, which consists of a number of headers placed horizontally above each other, connected by horizontal tubes. Around the headers and tubes is a jacket, made of No. 14 sheet steel, lined with metallic lath rivited close to the sheet and covered with 1 in. of asbestos cement, giving strength to the asbestos and having no metallic connections projecting into the furnace interior. The operation of the boiler is automatic, the oil fuel feed being controlled by a pressure gage regulator, attached directly to a tube and operated by the linear contraction and expansion of the tube. As the percentage of water increases in the tube, the heat and its linear expansion decrease, closing the water intake valve.



TALBOT BOILER, SHOWING TUBES, SHELL AND OIL BURNER.



DETAILS OF TALBOT STEAM BOILER.

Steam with any degree of saturation or superheat is obtained by adjusting the thermo regulator. The general dimensions of a 150-H. P. boiler are: Length,

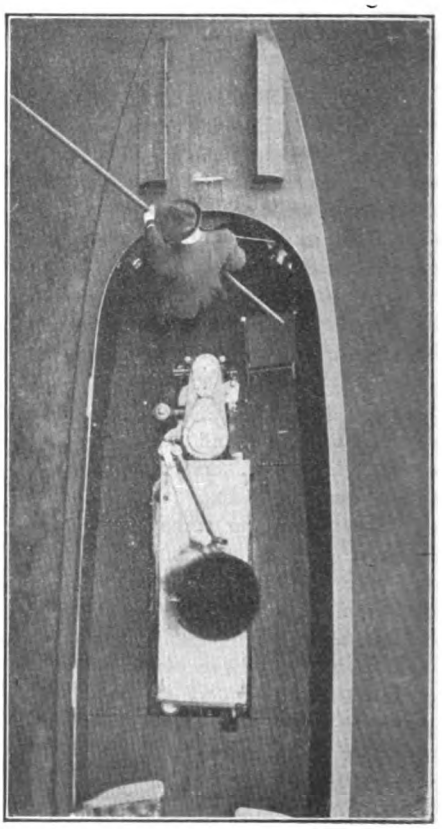


Photo taken from above.
25-H. P. TALBOT BOILER AND 4½ x 9 x 6 HEISHOFF COMPOUND ENGINE IN 32-FT. LAUNCH.

Generated on 2024-07-25 20:41 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

7 ft.; width, 4 ft.; height, 4 ft. 11 in., with 225 concentric tubes 6 ft. long; the outside tubes are 1½ in. diameter and the inside tubes are ¾ in. diameter. The headers are 40 in. long and, with the tubes, have a total heating surface of about 600 sq. ft. A 150-H. P. boiler weighs 3,500 lbs. complete. In the construction, no mud drums are used, the largest steam space being contained in the tubes. Working pressure varies from 75 to 500 lbs., depending on the engine.

Combined with a triple-expansion engine, the weight of both units is approximately one-half that of many internal combustion engines. A 50-H. P. steam boiler and triple-expansion engine measure about 9 ft. length, 2 ft. 6 in. in width and 3 ft. high. The standard return tubular boiler with its setting is about 23 ft. long, 11 ft. high and 10 ft. wide, or 2,530 cu. ft., which is eighteen times the volume required for the 150-H. P. Talbot boiler.

Being extremely simple and automatic in operation, they are adapted to marine work in small launches. The plan photograph of the launch shows a 32 x 7-ft. boat, fitted with a 4½ x 9 x 6-in. Herreshoff, 40-H. P. compound engine and a Talbot boiler, 2 ft. x 5 ft. x 3 ft. high, leaving a large amount of free space. The cost of operation, using crude oil, is about ¾ cent per horsepower hour.

STEAMER KEYSTORM.

On Friday, April 29, the Keystorm, which has been built at the Neptune Works, Newcastle-on-Tyne, of Swan-Hunter & Wigham-Richardson, Ltd., for the Keystone Transportation Co., of Montreal, had a satisfactory trial trip off the Northumbrian coast. The steamer has been built for the Canadian lake trade to the highest class in the classification of the British Corporation for the Survey and Registry of Shipping. She is 250 ft. in length by 42½ ft. beam, and will carry 2,300 tons on a light draught of water.

The engines on the triple-expansion system have been constructed by the North Eastern Marine Engineering Co. at their Wallsend works. On the trial trip they worked without the slightest hitch and the vessel attained a speed of about 10 knots per hour.

The construction of the steamer and her machinery has been superintended by Messrs. John Reid & Co., of Glasgow, London and New York, and they were represented on the trial trip by John Dunlop.

On the conclusion of the runs, the steamer proceeded to the Tees under command of Capt. Wright Mason, where she loaded for Canada. She is now on the great lakes.

STEAMSHIP INSPECTION SERVICE.

Editor THE MARINE REVIEW:—Feeling that it is not generally known among the subscribers of your valuable paper, just what is the scope and purpose of the Steamboat Inspection Service, and the aid it desires to render to the marine interests of the country, it is thought that it might prove an interesting item of news to your many readers if they were informed that persons interested could procure copies of the following named publications upon application to the Supervising Inspector-General, Steamboat Inspection Service, Department of Commerce and Labor, Washington, D. C.:

General Rules and Regulations Prescribed by the Board of Supervising Inspectors.

List of Licensed Officers of Merchant, Steam, Motor and Sail Vessels.

Laws Governing the Steamboat Inspection Service.

Pilot Rules for the Great Lakes and their Connecting and Tributary Waters.

Pilot Rules for the Rivers whose Waters Flow into the Gulf of Mexico and the Red River of the North.

Annual Report of the Supervising Inspector-General, Steamboat Inspection Service.

Pilot Rules for the Atlantic and Pacific Coasts.

If it is consistent with your practice, and you deem it of value to your readers, you are at liberty to publish the information given above, with the list of documents which may be procured upon application to this Bureau.

Respectfully,

GEO. UHLER,

Supervising Inspector-General.

Washington, June 6.

LAKE LAUNCHINGS.

The steamer Charles S. Price was launched from the Lorain yard of the American Shipbuilding Co., for the Mahoning Steamship Co., on May 13. She is named in honor of the president of the Cambria Steel Co., of Johnstown, Pa., and will be operated by M. A. Hanna & Co. The steamer was christened by Miss Helen Price. Luncheon was served to the launching party at the Union Club upon their return to Cleveland. The Price is 524 ft. over all, 504 ft. keel, 54 ft. beam and 30 ft. deep. She will be commanded by Capt. George B. Brock.

On the same day the steamer E. H. Utley, building for the Franklin Steamship Co., of Detroit, was launched from the Wyandotte yard of the American Shipbuilding Co. The Utley is named in honor of the vice president of the Bessemer & Lake Erie railroad and will be managed by H. K. Oakes, of Detroit. She was christened by Miss Frances Curtis, daughter of James A. Curtis, vice president of the Ford Collieries Co.

Quite an event was made out of this launching, the shipbuilding company chartering the steamer Pleasure to take its guests to the yard. Luncheon was served on board the Pleasure after the launching and a complimentary trip given to Lake St. Clair. Col. Utley brought his party with him from Pittsburg in his private car and in the afternoon the shipbuilding company took them on an automobile trip throughout the parks, ending with a dinner at the Lakeside Inn in the evening.

The Utley is in the 9,000-ton class, being 524 ft. over all, 504 ft. keel, 54 ft. beam and 30 ft. deep. She will be brought out by Capt. Edward Fitch.

The fire tug Torrent, building for the Duluth, Mesabi & Northern railroad, was launched on Saturday, June 4, at the Lorain yard of the American Shipbuilding Co. The Torrent is a duplicate of the W. A. McGonagle.

The lumber steamer E. L. Fisher, building for the Argo Steamship Co., of Cleveland, was launched from the yard of the Toledo Shipbuilding Co., on Saturday, June 4. The Fisher is 237 ft. long, 40 ft. beam and 17 ft. deep. She is named in honor of the president of the Fisher & Wilson Lumber Co., of Cleveland.

PERMIT REQUESTED FOR DOCK AT CHICAGO.

James A. Pugh and associates, of Chicago, have asked the war department for a rehearing in the matter of granting a permit to build docks into Lake Michigan, north of the Chicago river. The war department has announced that the rehearing will be held soon. If the permit asked for is granted, the construction of several docks will be commenced at once. The permit is requested under a 50-year old charter, issued to the Chicago Dock & Canal Co., which charter has been assigned to Mr. Pugh. Permission to construct the docks was granted some time ago by the war department, but later revoked at the instance of the city of Chicago, which claims some rights in the matter. At the rehearing, the rights of the city will be safeguarded before the new permit is issued.

Walter Thayer has been appointed general freight agent of the Anchor Line, taking effect June 1, the title of eastern manager having been discontinued. His office will be in the Broad street station, Philadelphia, Pa. J. C. Evans will be manager from June 1, the title of western manager having been discontinued. His address is Anchor Line dock, Buffalo.

Generated on 2024-07-25 20:41 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

THE MARINE REVIEW

DEVOTED TO EVERYTHING AND EVERY INTEREST CONNECTED OR ASSOCIATED WITH MARINE MATTERS ON THE FACE OF THE EARTH.

Published monthly by

Penton Publishing Co.

CLEVELAND.

BUFFALO.....932 Ellicott Square.
CHICAGO.....1328 Monadnock Blk.
CINCINNATI.....First National Bank Bldg.
NEW YORK.....1005 West Street Bldg.
PITTSBURG.....510 Park Bldg.
SEATTLE.....942 Henry Bldg.

Correspondence on Marine Engineering, Ship Building and Shipping Subjects Solicited.

Subscription, U. S. and Mexico, $1.00 per annum. Canada, $1.50. Foreign, $2.00. Single copies, U. S. and Mexico, 10 cents. Elsewhere, 15 cents. Back numbers over three months, 25 cents.

Change of advertising copy must reach this office on or before the first of each month.

The Cleveland News Co. will supply the trade with the MARINE REVIEW through the regular channels of the American News Co.

European Agents, The International News Company, Breams Building, Chancery Lane, London, E. C., England.

Entered at the Post Office at Cleveland, Ohio, as Second Class Matter.

June, 1910

AGENTS FOR MARINE REVIEW.

Buffalo:—
E. J. O'Connor, 2 Ohio street.
R. J. Seidenberg, Ellicott Square News Stand.
J. H. Fleming, Chamber of Commerce.

Chicago:—
Post Office News Co., 178 Dearborn street.
Frank Morris, 165 Wabash avenue.
James Dunne, Chicago Northwestern railroad station.

Detroit:—
Wayne Hotel, Jefferson and Third.
Robert Schram, 115 Woodward avenue.
Geo. W. Sharpe & Co., 138 Griswold street.

Gary, Ind.:—
Frank Kleinschmidt, 652 Broadway.

Toledo:—
K. Kramer, Produce Exchange building.

Boston:—
Board of Trade News Stand, Miss Minnie Cheney, Prop., Board of Trade building.
Revere Beach and Lynn News Stand, 350 Atlantic avenue.
Rowe's Wharf News Stand, B. J. Dannahy, Prop., Atlantic avenue.

New Orleans:—
Staub's News Emporium, Exchange Alley and Canal street.
Hollei's News Stand, Commercial place.
Hill's News Stand, Charles, near Canal street.

New York:—
J. Fine, Produce Exchange building.
Wm. Farrell, Battery place and Greenwich street.
J. Fuchs, 17 Battery place.

Washington:—
New Willard hotel, 14th and Pennsylvania avenue.
Becker & Orndorff, 1427 Pennsylvania avenue.

THE STATE OF INDUSTRY.

The apathy in the iron business and depression more or less extended in other lines bears no reflection in lake trade. The movement of ore during May was the heaviest for that month in the history of the trade. It reached 6,081,358 tons, showing an increase of 2,828,083 tons over the movement of May, 1909. To June 1, 7,601,665 tons have been moved, an increase of 4,292,597 tons over 1909—and it must be borne in mind that 42,500,000 tons were moved during the season of 1909, the heaviest movement on record. This movement was accomplished easily, notwithstanding the temporary blockading of the West Neebish channel caused by the sinking of a steamer and the congestion of both upper and lower lake docks. It is reasonably certain that 50,000,000 tons of ore will be moved during the present year. It will be a simple matter to even exceed that movement should the shippers require it. This ore will be moved at a freight rate 10 cents in excess of that paid last year, meaning an added distribution of $5,000,000 among vessel owners. Therefore, whatever may be the state of industry throughout the country, the lakes at any rate are prospering. The fact, too, that ore is moving in such abundance is a hopeful sign and puts the optimistic views of Judge Gary, of the Steel Corporation, upon a firm basis. This country is a mighty big one with enormous powers of consumption and pessimistic talk is out of place in it.

THE RIVER AND HARBOR BILL.

It is understood that out of 391 congressional districts 296 of them have appropriations in the River and Harbor Bill, now before congress; it is understood also that many of these districts have no water in them save mountain streams. Apparently what the late Senator Hanna termed pork is to be found in liberal quantities in this bill. Apparently the congressmen are acting on the theory that if the streams in their districts do not need improvement, their political fortunes do. It should be the settled policy of the government not to waste money upon streams that are not navigable or that from their general geographical situation will never bear a paying proportion of commerce. Millions can be economically spent in deepening channels in order that freight rates may be reduced; but even a penny is extravagantly wasted if spent upon a stream that will never bear a pound of commerce. The whole scheme of river and harbor improvements should be systematized. The abolition of the National Waterways Commission is a mistake.

DEVELOPMENT OF INLAND WATERWAYS.

A facetious after dinner orator recently remarked that if talk could be made to work, the much mooted deep-waterways projects in the Mississippi valley would have long since been completed and we would now be enjoying a 25-ft. channel from St. Paul, Chicago and Pittsburg to the Gulf of Mexico. Nevertheless out of the mass of fruitless discussion so caustically referred to and in spite of the many impractical or commercially impossible schemes that have been advanced, there are unmistakable indications that the people of the middle west are gradually awakening to a sane and lively appreciation of the deep waterways problem.

Recently the business men of Kansas City raised $1,000,000 to finance a people's boat line to ply the Missouri river between Kansas City and St. Louis. A portion of this fund, we understand, is to be used in improving certain bad stretches in the river and the balance in building and providing working capital for a fleet of properly constructed river steamers designed to carry freight.

It will be noted that this Kansas City-St. Louis steamboat line will not have to create any new traffic routes. One trouble with the Mississippi deep channel project from a commercial standpoint is that the bulk of the traffic in the United States moves in an east and west direction and to make any great use of the Mississippi much of this would have to be diverted to a north and south direction and the tremendous inertia of years of custom overcome. But between Kansas City and St. Louis is an immense traffic already moving along established lines and between established points. Furthermore we understand that the boats are to be con-

Generated on 2024-07-25 20:41 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

structed by competent architects with a view to the traffic and channel in question. That is, the boats are going to be made to fit the river, not the river to fit the boats, and the former is obviously much less expensive.

Again, at Chicago recently, when representatives of shippers from the whole country met to protest against the proposed horizontal increase in railroad freight rates, the need for a commonsense working out of the deep waterways problem by engineers and others with a keen eye for the practical and commercial features was urged. It was realized by the shippers present that only by considering the problem from a practical, commercial viewpoint will results be achieved in the improvement of our western rivers which will be of any use in regulating railroad rates by means of water competition.

A number of conservative and meritorious suggestions regarding the waterways problem were brought forth at this Chicago meeting of shippers, many in private conversation rather than on the convention floor. One may be mentioned. It was suggested that the trouble with the Mississippi between St. Paul and St. Louis is not so much a matter of depth or channel as an utter lack of landing facilities, suitable warehouses equipped with economical freight handling devices, and proper arrangements for transferring cargo rapidly and cheaply from cars to boats and vice versa.

This phase of the matter has not yet suggested itself to our pork barrel politicians; these had rather spend 10 times as much "deepening" the channel.

In brief, the people of the middle west are beginning to realize the true significance of their waterways problem, namely, that it is a matter for engineers and business men, not politicians and orators, to settle. It is to be hoped that this sentiment will grow, for only under business conditions may we expect the development of our majestic inland rivers and lakes to proceed along lines that will be a benefit at once to the people, the shipbuilders and the marine fraternity.

Boat Shop Organization

By F. G. Coburn.

THE advantage of processing work in shops, and of the "departmentalization" of shops, are too well known to call for extended treatment of the subject here; but I will show how the principles of that type of shop organization are applied to a navy yard boat shop. This particular application I do not, of course, recommend for all boat shops, for each shop has its own peculiar conditions which must be studied before it can be systematized; but the *principles*, the same for all shops, I think are fairly well illustrated by it.

All will agree that shop efficiency demands sufficient floor space, good illumination, and a sufficient equipment of machine tools, transportation facilities, and hand tools and appliances, all harmoniously arranged. Is it not also just as important that the foreman be provided with tools and facilities for planning-co-ordinating, and supervising his work? It is absurd to expect good work from a mechanic unless he has good equipment; it is just as absurd to expect results from a foreman unless he has an equipment.

In the old fashioned way, the foreman had to carry in his head the condition of all the work in the shop, and endeavor to remember what he had to do so as to lay out the future work of his men. But if he did not arrive at a layout, something would arise to make him forget it and he would have to do it all over again and he would probably not get it the same. In assigning one job and getting it ready, he would forget the others, for a man can do but one thing at a time, and then he would have to map it out again. In the meantime a man would run out of work, but rather than appear idle, he would nurse his job. Rush jobs would get all the attention, the others would suffer. Two mechanics would want a machine tool at the same time, so one would have to wait. These instances and illustrations could be multiplied indefinitely. The old way requires more supervisory men, more machine tools, more mechanics for the same production—or, another way of saying the same thing, is costly and wasteful.

The organization I will describe provides a method of planning work well in advance, and for recording the layout; and puts the results of the planning out in the shop, visible at all times, thus providing facilities for co-ordinating the work and leaving the foreman with the majority of his time to devote to actual way, which it supplanted, it reduces the

Bill of Lumber for One 20-Foot Dinghy.

Mark.	Kind of material.	Part.	Pieces req. for one boat.	Thickness in inches.	Width in inches.	Length in Ft. and In.	Remarks.

Fig. 1.

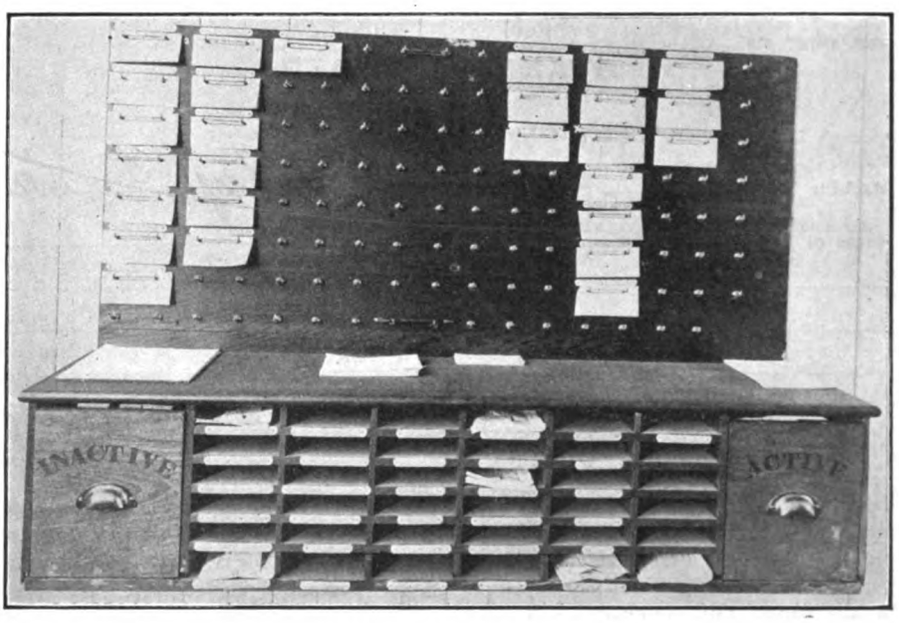


Fig. 2—Route Board.

Generated on 2024-07-25 20:41 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

Mfg. Dept. #224

CHECK NO. 2330 JOB ORDER NO. 392/156

BOAT 36 S.L. N-89

ISSUED May 5 19 10 COMPLETED 19 OK'd

DETAILED INSTRUCTIONS

Renew battens, capping, 6 planks, shoe on keel, bowsprit bolt, fit and fasten new Standard hanging pads and chain, removing old ring bolts, and fit 2 Standard pad eyes. Fit new, 3 crane sockets, 8 thwart plates, 14 thwart pins. Dress up footlings, bottom boards and aft platform. Straighten up 2 mast thwart clasps, rollers and bolts and bob stay fairlead. Recaulk.

FIG. 3—INSTRUCTION CARD.

overhead expense in the shop and increases production (already about 15 per cent, with better results in sight) and gives better work.

The equipment of the shop under consideration is very good; double overhead electric traveling cranes cover a large, well lighted shop; there are good, modern machine tools of ample capacity, and there are plenty of hand tools, pneumatic drills, and other hand appliances.

The class of work admits readily of departmentalizing. New boats are built, and old ones repaired, but with few exceptions they are all of standard types, built to the same plans and specifications in all yards. For building a new boat we have molds for the foundations and timbers, and patterns for the planking, interior joiner work, and for all castings and fittings. For repair jobs these can frequently be worked in to advantage, and the boat is there if they cannot. The work then most naturally resolves itself into three departments; material, milling and erecting.

MFG. DEPT. 614

STANDING ORDER

J. O. No. 392/156

Machine No. 2330 Date, May 5 1910

Name of Piece and Operation:

Repair 36 S.L. No. N-89

FIG. 4—STANDING ORDER.

Material Department.

This department is under one first-class mechanic, who has helpers or laborers assigned to him when he needs them. He has the custody of all molds and patterns, and of the lumber rack. No one else has access to this last. When he gets instructions to provide lumber for a boat, he is furnished with a bill of lumber for that boat—the heading of one of these, shown in Fig. 1, is self-explanatory. He gets down from the loft all molds and patterns, lines out the stock, and turns it over to the mill man. When he receives instructions to provide lumber for a repair job, he gets down the molds he can use, and gets dimensions from the repair job itself to complete his data. He provides the stock and lines it out for the millman.

Milling Department.

All the machine tools are operated by a mill man, who is an expert on the upright molder, and has acquired a satisfactory degree of skill on the other tools—planers, jointers, band and circular saws, sticker, etc. The other mechanics occasionally have use for a bandsaw, but not for the other tools. The mill man usually has a helper, who can do easy shaper jobs, and when rushed he has an unskilled helper, usually a laborer. While the line of demarcation between material and milling department is distinct, the two must work in harmony; and the selection of the men must depend on this almost as much as on their knowledge of their trade.

Erecting Department.

This department is composed of the rest of the mechanics and their helpers. The work is assigned to them according to their respective special abilities, and the development of specialists is not only encouraged, but by judicious assignment of work, is forced. Their job is to put together; it is only when a new type of boat is being built that they have

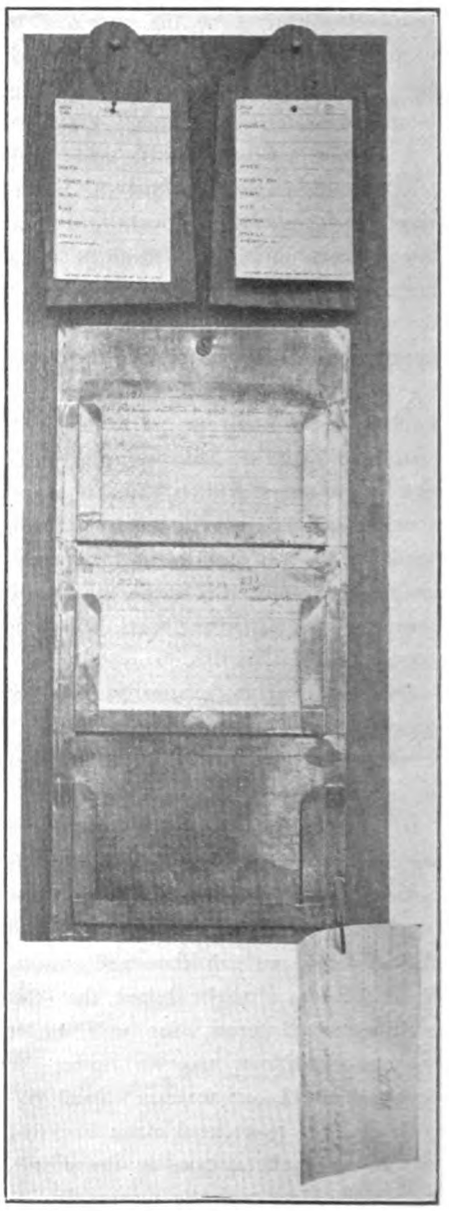


FIG. 5—INSTRUCTION CARD RACK.

Generated on 2024-07-25 20:41 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

MFG. DEPT. 1101. NAVY YARD, MARE ISLAND, CAL.

SHOP ORDER. May 5, 1910.
OUTPUT ACCOUNT.

JOB ORDER No. 392 APPROPRIATION C. & R. 1910

TITLE P 156 SUBTITLE WEST VIRGINIA GENERAL HEAD

TO Paint SHOP.

You will do the following work charging labor and material, as above:

Burn off paint, and repaint, 36' S. L. N-89

WORK SHOULD BE COMPLETED BY May 31, 1910.

FOREMAN Boat SHOP.

ORIGINAL AND DUPLICATE TO BE FORWARDED TO SHOP IN WHICH WORK IS TO BE DONE. FOREMAN RECEIVING ORDER WILL PUT IN DATE OF RECEIPT AND DATE ON WHICH WORK WILL BE COMPLETED, RETAIN ORIGINAL AND IMMEDIATELY RETURN DUPLICATE. WHEN JOB IS COMPLETED FOREMAN DOING WORK WILL FILL IN ACTUAL DATE OF COMPLETION AND FORWARD TO SHOP THAT ISSUED THE ORDER AND IF WORK IS SATISFACTORY ORDER WILL BE INITIALED AND RETURNED TO THE FOREMAN WHO DID THE WORK.

ORDER WAS RECEIVED ..... AND THE WORK

WILL BE COMPLETED ..... FOREMAN

WORK ACTUALLY COMPLETED ..... FOREMAN

IS WORK SATISFACTORY? .....

FOREMAN

FIG. 6—SHOP ORDER.

to take spilings for planking, and line out work for the mill man, except, of course, in repair work, when it is usually expedient for them to line out the new planks. Suitable stock is then provided them direct by the material man.

Supervision and Routing of Work.

The making of invoices, requisitions on the storekeeper for material, shop orders on the other shops, and other clerical work required in the shop in a large plant such as a navy yard, is performed by the foreman's clerk, a civil service employe, at $2.80 per diem, thus relieving the foreman, a $6.60 man, of all but his proper supervisory work, which is to plan and co-ordinate the work of his three departments, and closely supervise his mechanics.

To plan his work, he is furnished with a "route board"—see Fig. 2—which is practically a moving picture of the shop—a picture of its present and future, as well. The two drawers, one on either side, are to file his job orders; those on which, for any reason, the shop is not working, in the "inactive" file, and those which are being worked on in the "active" file.

The board above the shelf is fitted with a number of pairs of hooks, one pair for each man, and over the man's hooks is a name plate giving the name and check number of the man. The mechanics occupy the left hand side of the board; then the mill man—and his helpers if business is good enough to warrant permanent assignment to his department; then the helpers; and last, the apprentices.

When a job order is received in the office, the clerk receipts for it, attaches to it any memoranda which may have been previously received bearing on it, and puts it in the foreman's basket. If it is urgent, he takes it right out to the foreman, otherwise it awaits the latter's convenience. If, for any reason, it is not to be taken up at once, the foreman, after noting it, places it in the inactive file. If to be taken up at once, however, he prepares "instruction cards" and "standing orders," Figs. 3 and 4, respectively, for it at once.

These standing orders are in use in the other shops and are used in the boat shop without modification in form. The card to the material man is, in the case of a building job, accompanied by a lumber bill; in the case of a repair job the card states in detail the work to be done, so that he can go to the boat and get his measurements. The card to the mill man serves merely to give him the job order number to which to charge his time; more than that is unnecessary. The card to the mechanic in the erecting department gives explicit, detailed instructions as to the work to be done, and these are not departed from save on written instructions. For each instruction card a standing order is written, giving the job order number, a word or two to indicate the character of the work, and the workman's check number.

If it is a rush job, the cards are put out at once. Ordinarily, however, the job is routed according to the state of work as indicated by the route board. The idea is to keep two jobs ahead for every man. Thus with a full shop there will be three standing orders on each mechanic's hook, the top one showing the job he is on, the next showing the job ahead, the third his second job ahead. If, however, the board shows a

M'F'G DEPT. 108

MINOR MATERIAL

Ship 36'Sl N89 Date 5-10-10

Job Order No. 392 / 156

3 lbs calking cotton

ab

LEADINGMAN

FIG. 7—MINOR MATERIAL SLIP.

Generated on 2024-07-25 20:42 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

Job Order No. 392/156 Title P Sub-Title WEST VIRGINIA

Appropriation C. & R. 1910 Gen'l Head

NAVY YARD, MARE ISLAND, CAL.,

May 2 19 10

Sir:- You will please repair 36' Sail Launch N-89.

Requires New (Battens, capping, 6 planks, shoe on keel, bowsprit (bolt 3/4", 2 hanging pads & stoppering chains, (2 standard pad eyes, 3 sockets for cranes, 8 (thwart plates, 14 thwart pins.

Repairs to (Footlings, after platform, bottom boards, rollers (and bolts, 2 mast thwart clasps, fair leader for (bob stay, recaulk, burn paint, repaint.

New outfit required. (2 gratings, 8 thwarts, 3 stern benches.

Repairs to outfit. (1 set chain slings, forward platform.

	ESTIMATED COST	ACTUAL COST
Labor		
Material		
Indirect		
Total		

Authority Commandant's approval April 30, 1910.

Date of Completion

To Master Boatbuilder.

Respectfully,

To be returned to office upon completion of work

FIG. 8—REPAIR JOB ORDER.

man shy a job, the standing order is put on his hook, third in succession, and the instruction card is carried out and put in the mechanic's rack, and the cards and standing orders for the material man are treated likewise.

If the shop is full, the instruction cards, with standing orders attached, are placed in a pocket below the shelf between the order files; there is a pocket for each kind and size of boat. There they wait until work runs low enough to admit of their disposition as above detailed.

Co-ordination of the Work.

The planning of the work, and collecting of the loose ends, are done at the route board; the actual co-ordination of it must be done out in the shop. To make this easy instruction card racks are provided, one for each workman (Fig. 5). The top card is the job the mechanic is on; it gives him his detailed instructions and the number to which he charges his time. Thus this card is primarily for the workman's information. The second card is his next job, and all the materials and appliances for it must be there, ready for him. Thus this card is primarily for the guidance of the foreman; he must see that the job is ready, so that the mechanic can lose no time. The third card is for the second job ahead; the stock for that job is on the way, and the card serves solely as an alarm clock for the foreman. Fig. 5 shows only two cards in the pockets; this is because the workman has just finished a job, and hung the card covering it on the hook on the lower right hand corner of the rack. He then fleeted up the other cards, and started on his next job. The foreman's attention will be flagged by that card on the hook; he will examine the job, O. K. the card if the job is satisfactory, see that the stock for the next job is provided, and assign a third job. Completed instruction cards he files with the job order; and he tears the corresponding standing orders off the workmen's hooks on the route board, thus automatically keeping the board in accord with the shop.

Materials Other Than Lumber.

I have had prepared a bill of castings and fittings for each kind and size of boat, so that when a new boat is ordered the clerk can prepare requisitions on the storekeeper and shop orders on the other shops without delay. For a repair job he makes these out from a rough list given him by the foreman when the boat comes into the shop, before work is started on it. The foreman fills in the date on the shop order (Fig. 6) before which the article is required, and thus—if luck is with him—he gets his fittings at the same time they are required in the regular run of the job.

A small stock of fastenings, calking cotton, etc., is carried in the tool room. When any of this class of goods is needed by a mechanic, he or his helper gets it from the tool room by making out a "minor material slip" (Fig. 7). These are in common use by leading men in the other shops and are used in the boat shop without modification in form. At the end of each week all slips are thrown together by job order numbers and filed with the orders, and when a job is completed, goods of equivalent value are drawn from the storehouse, on that number, to replenish the stock. In this way, each job is readily made to stand the cost of these minor items, which total up to a respectable figure.

Specifications for Work.

A foreman's interest should lie in *production*, and best results will be obtained by his application to that end alone, the office to specify, and estimate on, his work. A leading man boat builder is placed in the estimating section of the main office, where his chief duty is to examine, and estimate on, all repair jobs going to the shop. His specifications and estimates are then very carefully reviewed and revised by the officer in charge of the estimating section, before being incorporated in a job order. All job orders for repairs are in great detail; the number of timbers to be renewed, what interior joiner

Generated on 2024-07-25 20:42 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

work is to be repaired, etc.; a specimen repair job order is shown in Fig. 8. It is obvious that considerable benefit accrues from having the estimate made by one other than the man who does the work. The money spent for this estimator is very well invested.

Charging Time.

In Fig. 5, above the instruction card rack, will be seen a pair of hooks each holding a number of time, or service,

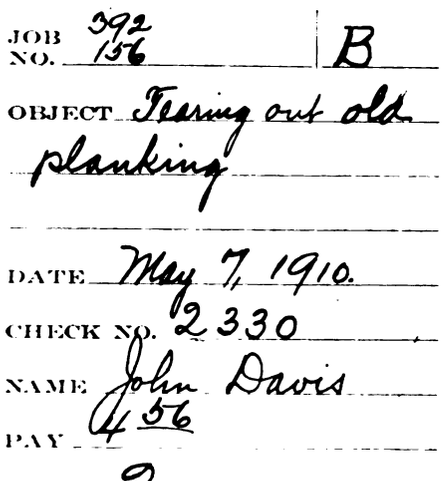


FIG. 9—TIME CARD.

cards, a specimen of which is shown in Fig. 9. The blank cards are right above the instruction card; the workman cannot make a mistake in charging his time. These cards, collected during the last hour of the day, must be certified as to correctness by the foreman, and sent to the accounting office, where the charges are located to the job orders, for record.

Future Development.

Many superintendents and managers hold that organization and systems like this are too complex, too much involved with paper work; but most of us are swinging into line. The present results of this systematization are gratifying, and the future is one of great promise.

Development for the immediate future must lie in the line of faster and more efficient work obtained by better planning, better co-ordination, and closer supervision; and later by the adoption of a premium, or task and bonus, system of wage payment. Time studies of the building operations are now being made, and building job orders are divided into their basic operations for the better isolation and analysis of the costs, with this end in view. There will come also the same method of payment for repair work; the problem is more difficult than in the case of building jobs, but its solution only depends on the accummulation and application of proper data.

Honor to Admiral Melville

AT the recent meeting of the American Society of Mechanical Engineers at Atlantic City, N. J., June 1, 2 and 3, honorary membership in the society was conferred on Rear-Admiral Geo. W. Melville, U. S. Navy, retired. Although the society has a very large membership, the honorary members have been few in number and the rules of the society provide that the ballot must be a unanimous expression of the entire membership.

President Westinghouse said: "This is an occasion of very, very great pleasure to me, to be president of this society at this time, and to have the opportunity of presenting to Admiral Melville a certificate of honorary membership in the American Society of Mechanical Engineers. I have known the admiral for a great many years, and I know no man more worthy of the honor to be conferred tonight than he is. We welcome him into the society as an honorary member with a very great deal of pleasure." (Applause.)

Admiral Melville: "Mr. President, ladies and gentlemen, it pleases me to say how appreciative I am of the honor conferred on me this evening. I am an old hand at this sort of thing, having been in active life for fifty years, having had all the honors my government could give me, and I have been knighted in foreign lands, yet I assure you there is no honor that has come to me so much appreciated as the present one, because it is of my own kind, my own people, my fellow men who are bestowing it on me. We are the working men of the world, who make the wheels go round, build the ships and build the railroads, and I am prouder of this honor than any other honor that has ever been conferred upon me."

Sir William White's Remarks.

Sir William White, for many years constructor-in-chief of the British navy, who was present as a guest, was invited by President Westinghouse to express himself as an old acquaintance of Admiral Melville, and said: "It is a great pleasure to me to be here tonight and share with you the honor and pleasure of welcoming Admiral Melville as an honorary member of this society. The admiral has spent many long years of hard work in the service of his country. Well, there are others of us who know what that means. It does not mean fortune, it does not mean fame, and I suppose those who have served their country must be content to feel that they have done their duty, and after all that is the noblest thing of all, but when from those competent to judge, as this society is competent to judge, there comes an unsought acknowledgment of merit and of arduous service, such as the admiral has so properly and fittingly received tonight, then I can understand his feelings. I can understand that he was utterly overcome by the emotion of his heart, when he said that such an honor as has come to him tonight is that which he places in the very highest rank.

"There is an old saying that was uttered by some high authority, that a prophet is not without honor, save in his own country, and it is perfectly true, very often, that a better appreciation of what a man is worth is made by those who are further off from him than by those amongst whom he lives. It is what artists call perspective. We grow accustomed to the good qualities of those with whom we are constantly in contact, and lose the sense of how great or worthy a man may be, because we are always meeting him and expecting him to do things that are great and noble and good. We do not take account of the fact that they are being done, until something happens to bring it to our notice in a startling fashion, and not infrequently it is only when there comes the loss of what we have taken for granted and looked for every day and every moment of a man's life, the loss that comes with his death, that the people wake up to the fact that they have been living in the presence of a man altogether exceptional and out of the common rank and file.

Never Flinched From Duty.

"Now, it is not for me, in some sense a stranger, and yet in another not a stranger here, to attempt to praise the character and work of Admiral Melville, but this I do know, that all his life long he has never flinched from duty, and that all the time he has been

Generated on 2024-07-25 20:42 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

serving his country his rewards have not been rich or great, but that has not affected the performance of his duty. He has brought to bear upon that duty all his powers of mind and body; we all know that his naval service afloat has been marked by the most extraordinary experiences, which brought to the world's notice what sort of a man he was, when hopes seemed dead and the possibility of returning to his native land remote. I believe I am right in saying that Admiral Melville was the only commissioned officer left on that expedition.* I think it is no exaggeration to say, if he had not been with it, that expedition would never have returned home. That is an incident that goes so far back that it is like ancient history, but here is the man (pointing to Admiral Melville), and then he took up his place as engineer in chief of the United States navy, and he worked for years under conditions of peculiar difficulty, amidst remarkable changes.

"It was an entirely different life for a man to lead, to go ashore from the naval service, in which he had spent his prime, but he took that duty up and performed it.

"Now, tonight, ladies and gentlemen, I am sure I only speak what you all feel when I say that we wish the admiral all possible happiness, that we wish to do him the utmost honor, and we shall always bear his qualities in affectionate remembrance.

"Admiral, as one who many years ago was very unworthily made an honorary member of this society, when at a time, through excessive work, his powers were failing, and for a time he could not work at all, I can understand how highly you value the honor done you tonight, because it has been done to me. It was done to me when the world was looking very hopeless and dark, and it was done me after the last visit of the American Society of Mechanical Engineers to England, when I was president of the English society, and my earnest hope is, that although at that time it was impossible for me to take active part in the welcoming of this society to England, this time, the occasion of your visit in the near future, I may be able to say something of my gratitude to those who did me the honor long ago, similar to that which has been done to the admiral tonight, and I sincerely hope that circumstances may allow the admiral to come to England with the society, and there to find that his old friends have not forgotten him." (Applause.)

The Engineer's Duty as a Citizen.

Following Sir William White's remarks, Admiral Melville addressed the society on "The Engineer's Duty as a Citizen." Admiral Melville said:

"Doubtless every one present has read Macauley's famous chapter, in his History of England, which describes the conditions obtaining in 1685. This chapter is one of the most wonderful descriptions in all literature, giving as it does the details of every feature of the life of that time, some two hundred years ago. I refer to this account because I want you to contrast it with the conditions of today, which are so familiar to you that it requires some effort to remember that the conveniences and comforts of the poor man of today are beyond the wildest dreams of the wealthiest men of the period described by Macauley. I may remind you that this was a time when there were no sidewalks, and the streets were unlighted; when the highways became bogs in rainy weather and highway robbery was almost a recognized profession; when sanitation and sewerage were unknown, and refuse heaps accummulated under the windows of the great and the wealthy; when it was dangerous to go out alone at night, and when it was still legal to hang the unfortunate who stole a loaf of bread.

"Macauley remarks, in one place, that the nobility, at such fashionable watering places as Bath, had to put up with accommodations at which their servants would, when he wrote (1850) turn up their noses.

Improvement Due to the Engineer.

"Now, when we make the comparison between the two periods, and when we remember that there is hardly a branch of human activity in which there has not been the greatest improvement, we are naturally led to ask to whom is that improvement due.

"In all fairness, we should doubtless have to say that many or most of the professions have had a part in the amelioration of conditions, although the student of history remembers with regret how the great lawyers opposed the remission of the death penalty for what we would now consider minor offenses.

"The doctors undoubtedly are entitled to much credit for improvement in medicine, surgery, sanitation and hygiene, and we might go on to give credit to others.

"It seems to me, however, that when some future Macauley describes the condition of the United States at the beginning of the twentieth century, and attempts to award the credit for the existing comforts and conveniences, the major part must be given to the profession of engineering. Within one hundred years after the time described by Macauley, Watts had so far perfected the steam engine as to bring about the beginnings of the factory system which has made possible cheap clothing and cheap articles of manufacture of every kind.

"In a century and a half, the steamboat and the railroad has come into being. Then, we have gas for illumination, and the telegraph for rapid communication, and so on down the line to the present day with the electric light, the electric railroad and the telephone. Every one of these improvements is due to the engineer.

"Added to the superior facilities of communication by railroad and steamer, we have mechanical refrigeration, which enables the densely populated countries of the old world to be supplied with meats from the great plains of the new, and these superior means of transportation have provided the rapid movement of food products so that the whole world contributes to the comforts and delicacies of our table, no matter where he may be.

The Improvement Since 1850.

"The contrast between the great cities of the period described by Macauley in 1850 and those of today is startling. They were without the conveniences which a country town of moderate size would now consider absolute necessities. A system of water distribution, sewerage, street paving, and so forth, is all the work of the engineer, the filtration plants are obviously an engineering work, even if we consider their inspection due to the medical men.

"Perhaps you are asking yourselves why I should think it necessary to go into this detail about matters which are of common knowledge, and then their mention can give little additional information. My reason it this—I want to emphasize the fact as a basis to discuss the question—what does the engineer owe to society when society owes so much to the engineer?

"In the early history of the race, when war was the almost constant condition, it was inevitable that the great warrior should become the leader and ruler of the people. As time went on, the engineer developed, as we know from the wonderful works of antiquity like the great aqueducts, the bridges, the tunnels and the roads; but, from the past, had come the tradition lodging leadership in the warrior caste, where it remained for many centuries, and, indeed, has still a tendency to remain in monarchical countries.

Hereditary Nobility But a Belated Survivor.

"During the last century, wars have been less frequent; and, due to the work of the engineer, commerce has be-

*The Jeannette Arctic Expedition.

Generated on 2024-07-25 20:42 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

come so prominent that, while hereditary nobility linger on the scene, their titles have become almost meaningless. This is particularly noticeable when one of the English dukes served in the quartermaster's department during the Boer war in a subordinate capacity, and still more so in the war between Russia and Japan, when only one Russian general was a member of the nobility.

"I think you will see the point to which I am trying to lead up; namely, that in this 'age of the engineer' he should not rest content simply with doing the work which makes for our comfort and happiness, at the command of other men who are lawyers or simply business men, but that the engineer himself should take a vital and directing part in the administration of affairs. I know the objection that at once appears to almost every mind; namely, that an engineer's professional work is so engrossing and exacting that it is impossible for him to become a politician in the sense that a politician is a man who gives all his time to pulling wires and filling offices. This is doubtless true, but engineers, like other men, can find time to attend to business matters which affect them personally. In other words, where it is a matter of self-interest, the engineer, like other men, can find time for this extra work.

Serious Duty as Citizens.

"Now, we Americans are very fond of claiming that we have the greatest country, and the freest and best government in the world. That government, however, for its efficiency and integrity, depends upon us as citizens, and it ought to be a matter of the greatest pride to every American to feel that he is doing his part, so far as lies in him, to make the country and its government better and happier every year.

"I have reminded you of the enormously important part which the engineer plays in the life of today, and it seems to me that for this very reason it is encumbent upon him, more than upon most other men, to take a vital interest in the work of government, and to lend his trained ability and judgment to its perfection.

"I do not mean, of course, that the engineer should do routine professional work for the government without compensation, but I do mean that in the discussion of public improvements and the administration of government departments, the engineer should take an active public stand so as to influence and guide the non-expert part of the population in right ways of thinking.

Enormous Sums Squandered.

"It is notorious that, in the past, enormous amounts of money have been squandered on great public works because they were undertaken in a way which every engineer knew must be inefficient and uneconomical. Occasionally, some engineer raises his voice, but too often only to be jeered at as a crank, instead of receiving thanks. If all of us, as engineers, had a keen sense of our duty in this respect, and would properly utilize our experience and ability through the daily press, the magazines and the reviews; by public discussion, and in the daily intercourse of life, as well as by impressing the truth upon our representatives in municipal and national affairs, I believe he would accomplish an immense amount of good.

"It will be understood, I am sure, that I refer almost entirely to the relations of the engineer to society in general, and not to other professional men. For many years, engineers have been most generous in making public to their technical brethren the results of their experience and our own proceedings are full of instances. It would be impossible to name more than a few, but perhaps the most notable case was that of Past President Taylor, when he published the results of his life work of research on the art of cutting metals.

Management of Labor.

"One of the problems of foremost importance at the present time is that of the management of labor so as to secure efficient work and satisfied men. It is probable that, as far as skilled labor is concerned, the direction of more than ninety per cent is in the hands of engineers. Most emphatically is this a case where engineers owe a great duty to society. It is, therefore, an especial pleasure to recognize that some of our own members have played a foremost part in the best work that has been done in devising plans for compensating labor that will stimulate the men to their best efforts, and reward them adequately. The names of Halsey, Taylor, Gantt and Emerson will at once occur to you.

"It would be inappropriate in this brief address to attempt any discussion in detail of the labor problem, but I feel that I shall voice the sentiment of every one present when I say that the effort of every patriotic American should be exerted to maintain absolute freedom of contract in labor matters as in all others. Just as we are opposed to monopoly by capital, so we are to the same thing by labor. No reasonable man objects to labor organizations, as such.

"They have undoubtedly been the cause of much benefit to the men. The danger with them, as with political organizations, is the formation of a 'machine,' which utilizes the organization solely for the selfish interests of the members of the machine. There can be no doubt whatever that many strikes are made against the real wishes of a majority of the men, who are overborne by the machine and its adherents; and it is also true that the net result of nearly all strikes is an actual loss to the men.

"The problem is an exceedingly difficult one, and it requires the greatest wisdom, patience and tact for its complete solution; if, indeed, taking human nature as it is, we can ever hope for its removal from the list of worries of the manager of great enterprises.

Questions Require Engineering Knowledge.

"Many of the questions which are prominently before the public at the present time are peculiarly such as require engineering knowledge for their proper understanding and regulation. The word 'trust' has come to have such a sinister meaning that it is only necessary to fasten that word upon an enterprise to render it criminal in the popular estimation. We have recently heard a great deal about the so-called 'Water Power Trust,' the charge being that all the available power sites were being grabbed so as to subject our citizens at some future time to the payment of tribute for electric power derived from them. I am not concerned, at the present moment, to discuss the question of monopoly, which we all deprecate, but to point that engineers know that these water powers cannot be made available except by the expenditure of large sums of money.

"Indeed, it would be easy to point out the fortunes that have been lost in the attempted exploitation of the supposedly lucrative natural gifts. The general public is utterly misled by statements that these power sites are obtained for nothing; their idea being that the development is a matter of small expense. Here, the engineer can do a work of real benefit by disseminating correct information.

"Again, in the consideration of public service corporations, the engineer knows the cost of installation and operation, and so can discuss intelligently whether rates are fair or exorbitant; whether capital represents real investment or water. These are problems of the greatest importance, for their proper solution, the electorate needs training, which can be given by no one else so well as by the engineer.

Navy Organization.

"About a year ago, at our Washington meeting, I did what I could along this line in the way of pointing out the mistakes which have been made in connection with navy yard organization, and this illustrates very clearly what I am advocating for all engineers. Here was a great department of the government

Generated on 2024-07-25 20:42 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

for which the annual appropriation now exceeds one hundred millions of dollars.

"Its administration had fallen into the hands of a man who proved himself entirely incompetent, and who started to make changes in the entire administration which would have been ruinous to efficiency, and yet, hardly a voice was raised in opposition. I even heard of a case where one of our leading engineering journals refused to publish a criticism of this system, which was submitted to them through a man whom they knew and estimated most highly, but who stated that the author was so situated that he could not permit his name to be presented. Not only would the magazine not print the article which was submitted, but they did not take enough interest in this most important subject to study it for themselves and then comment upon it.

"I would not be understood as implying that engineers never show public spirit in such ways as I have suggested; there are too many instances to the contrary. Our own society and others, which have taken part in the movement for conservation of our natural resources, have set a good example, and other cases could be cited where individual engineers have shown commendable enthusiasm.

"These are, however, mostly cases of unusual importance and relatively infrequent. What I am pleading for is the habit of mind in all engineers which will cause them to take an active part in all public questions, great or small, where their knowledge and experience will enable them to benefit the common good.

"In the movement which is on foot by the Congress to have established a Bureau of Mines, suggests an opportunity for the engineer to take an active part in public affairs.

Department of Mines and Manufactures.

"It is a question in my mind whether this idea might not be developed a little further by providing for a department with a cabinet officer at the head, to be called the Department of Mines and Manufactures, with the scope which that title would imply.

"When we think of the enormous values represented by the industries which would come within the purview of such a department, it seems only reasonable that they should be under the care of a cabinet officer. If we are told, in reply to this, that there is always the Bureau of Corporations in the Department of Commerce and Labor, we need, perhaps, to be pardoned for saying that what would be expected of the new department would be such fostering care, under the direction of experts, as would increase the efficiency of various branches of industry, instead of an office whose function seems mainly to inspire corporations with awe, and, as some of them think, to interfere with their legitimate expansion.

"In any event, whether a department or bureau is organized, engineers should see that its personnel is composed of experts who can be of some real help in the advancement of the interests of our great industry.

"We have often heard in the past complaint by engineers that the profession did not receive the praise and credit which were its due for its splendid work. This is true enough, but is the reason not very largely because the engineer hitherto has been content to do the work and then fade into the background, leaving the talking and the management to the lawyer and the politician? Of course, we cannot expect young engineers, occupying subordinate positions, to take a very prominent part in public affairs, but with the advance of technical education, the condition has now come about when, more and more, the presidents and other high officials of our large corporations are engineers by training and experience. It is to these men, whose talents and trained ability have made them the leaders in manufacturing and in business, that the country has a right to look for leaders in the affairs of governments, and it seems to me that not until the engineer, of all grades, has done his part towards the promotion of the highest efficiency of the government can he truly say that he is, in the fullest sense of the term, a good citizen of the republic."

BRIDGE SIGNALS AT DULUTH-SUPERIOR.

Paragraphs 7, 12 and 14 of the rules and regulations for the canals and channels in the harbor at Duluth, Minn., and Superior, Wis., have been amended to read as follows:

7. Following is the number and kind of blasts of the steam whistle, or of a horn when a vessel is not navigated by steam power, which shall be given as a signal for opening the respective bridges:

Interstate (or Duluth-Superior) bridge, 1 long, 1 short, 1 long.

Minnesota draw, N. P. bridge, 1 long, 2 short.

Wisconsin draw, of N. P. bridge, 2 long, 2 short.

Grassy Point bridge, 2 short, 1 long.

Lamborn avenue bridge, 3 short blasts.

Transfer bridge, New Duluth, 3 long blasts.

The duration of a long whistle should not exceed 3 seconds, and a short whistle should not exceed 1 second.

12. Upon receiving a signal for opening the draw, the tender shall at once answer with a return signal, which shall be the same as the signal for opening, to indicate that the vessel signal has been heard. The tender shall take note of the vessel's position, speed, etc., and open the bridge in time to allow the vessel to pass through (see, however, par. 13).

14. Vessels must be given precedence over highway or railway traffic. When a signal is given by a vessel to open the bridge, a railroad train, a street car or wagon, that may be approaching to cross the bridge, must be required to wait for the vessel to pass. Provided, however, that vessels of 100 net registered tons or under may be held for a short period in case a first-class passenger train, carrying United States mails, is ready to cross the bridge, or in case four street cars, coming in one direction, are ready to cross the bridge.

Approved,
ROBERT SHAW OLIVER,
Assistant Secretary of War.

ORE SHIPMENTS.

Ore shipments during May established a record for that month, 6,081,358 tons being moved as against 3,253,275 tons for May, 1909, an increase of 2,828,083 tons. The movement to June 1 of the present year was 7,601,665 tons as against 3,309,068 tons for the corresponding period during 1909, an increase of 4,292,597 tons. This great movement emphasizes quite clearly the capacity of the lake fleet. Vessels did not really get under way until well toward the middle of May, there being little or no demand for wild tonnage. Moreover, there were numerous physical delays such as low water and the blocking of the West Neebish channel. It is clear that the fleet will have no difficulty in moving 50,000,000 tons of ore this year if shippers require it. Following is the summary:

The shipments by ports follow:

	May, 1909. Gross tons.	May, 1910. Gross tons.
Escanaba	337,734	749 091
Marquette	133,097	481,325
Ashland	232,184	588,604
Superior	608,515	955,651
Duluth	1,215,925	2,220,758
Two Harbors	725,820	1,085,929
Total	3,253,275	6,081 358
1910 increase		2,828,083

	To June 1, 1909.	To June 1, 1910.
Escanaba	384,856	972,117
Marquette	133,097	616,885
Ashland	240,855	807,307
Superior	608,515	1,310,958
Duluth	1,215 925	2,530,185
Two Harbors	725,820	1,364,213
Total	3,309,068	7,601,665
1910 increase		4,292,597

LOVING CUP FOR MR. GOULDER.

During the past two years, the freight rate on ore has been 65 cents, at which figure it was generally admitted by shippers that there was little money in the business, even for the larger boats and none whatever for the smaller ones. The restoration of the rate to the basis of

Generated on 2024-07-25 20:42 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

LOVING CUP, PRESENTED BY VESSEL OWNERS TO HARVEY D. GOULDER.

75 cents has been the concern of the vessel interests since and one of the leaders in the movement to persuade the shippers to restore it was Harvey D. Goulder, general counsel for the Lake Carriers' Association.

It is known that the rate was restored to a 75-cent basis for 1910 by an advance of 5 cents in the freight rate over that paid last year and a reduction of 5 cents in the unloading charge. In the ore trade the vessel always pays the unloading charge so that the two combined made an advance of 10 cents.

At a dinner given by Capt. John Mitchell at the Union Club, Cleveland, on May 19, the independent vessel owners of the great lakes presented Mr. Goulder with a loving cup as a token of their appreciation for his efforts. President Livingstone, of the Lake Carriers' Association, made the presentation speech and addresses were also made by Capt. John Mitchell, Capt. Alfred Mitchell, Capt. J. J. H. Brown, John Craig, A. T. Kinney, Capt. Charles L. Hutchinson, J. H. Speddy, C. O. Jenkins, W. A. Hawgood, Capt. Arthur Hawgood, S. P. Shane and J. S. Ashley.

The cup, which is of Tiffany workmanship, bears the following inscription:

"Presented to our friend, Harvey D. Goulder, by the vessel owners of the Great Lakes, 1910."

John Mitchell,	Wisconsin Trans. Co.
H. K. Oakes,	L. C. Waldo,
Hutchinson & Co.,	A. E. Stewart,
Hawgood & Co.,	J. W. Westcott,
W. H. Becker,	Wilson Transit Co.,
W. M. Mills,	Charles O. Jenkins,
E. D. Carter,	S. P. Shane,
Frank Seither,	J. J. Rardon,
H. L. Shaw,	John Craig,
Vance-Joys Co.,	Brown & Co.,
D. Sullivan,	Boland & Cornelius,
Edward Mehl,	Richardson & Co.,
Henry Steinbrenner,	J. H. Speddy,
H. S. Wilkinson,	Joseph Sellwood,
W. B. Davock,	A. T. Kinney,
Thomas Cranage,	H. H. Brown,
S. P. Cranage,	Henry Wineman Jr.
C. W. Elphicke,	Lake Erie Trans. Co.,
M. B. McMillan,	A. B. Wolvin,
P. H. McMillan,	G. A. Tomlinson,
John J. Barlum,	W. Livingstone,
R. F. Gray,	J. I. Adams.

COMMERCE OF LAKE SUPERIOR.

The commerce of Lake Superior, as registered by the canals at Sault Ste. Marie, amounted to 8,528,286 tons during May as against 4,963,351 tons for May, 1909, an increase of 3,564,935 tons. The total movement to June 1, 1910, is 10,487,199 tons as against 5,184,962 tons for 1909, an increase of 5,302,237 tons. Following is the summary:

EAST BOUND.

	To June 1, 1909.	To June 1, 1910.
Copper, net tons	21,613	22,202
Grain, other than wheat, bushels	6,965,045	11,235,276
Building stone, net tons	450	.....
Flour, barrels	918,753	1,251,958
Iron ore, net tons	3,028,609	6,992,650
Iron, pig, net tons	3,808	3,706
Lumber, M. ft. B. M.	62,564	99,301
Wheat, bushels	14,186,930	18,317,844
Unclassified freight, net tons	29,136	18,823
Passengers, number	829	1,605

WEST BOUND.

Coal, anthracite, net tons	260,060	467,042
Coal, bituminous, net tons	836,800	1,579,224
Flour, barrels	.....	1 000
Grain bushels	.....	100
Manufactured iron, net tons	61,192	90,997
Salt, barrels	164,340	159,143
Unclassified freight, net tons	156,992	231,494
Passengers, number	962	2,204

SUMMARY OF TOTAL MOVEMENT.

East bound, tons	3,845,433	8,095,083
West bound, tons	1,339,529	2,392,116
Total	5,184,962	10,487,199
Vessel passages	2,130	3,626
Registered tonnage, net	4,340,531	9,044,088

OBITUARY.

Capt. J. D. Peterson, an old lake navigator, died at his home in Sandusky on Thursday, June 2. Capt. Peterson was born Feb. 26, 1841, at Black River, O. (now Lorain). He started sailing at the age of 15 on his father's schooner, the Wild Rover. In the spring of 1858, he shipped on the schooner Evelyn Bates. In 1859 he was appointed second mate and made a trip to Liverpool, taking a return cargo to Cuba. In 1863 he was appointed master of the schooner Wings of the Morning. He continued sailing schooners until 1881, when he was appointed master of the steamer Columbia. In 1890 he brought out the steamer J. C. Lockwood and sailed her until he retired in 1902, the name of the Lockwood having subsequently been changed to F. B. Case. Capt. Peterson leaves four children.

WATER CARRIAGE OF GOODS ACT.

Following is the text of the water-carriage of goods act, passed at the recent session of the Dominion parliament:

1. This Act may be cited as The Water-Carriage of Goods Act.

2. In this Act, unless the context otherwise requires:—

(a) "goods" includes goods, wares, merchandise, and articles of any kind whatsoever, but does not include live animals;

(b) "ship" includes every description of vessel used in navigation not propelled by oars;

CAPT. J. D. PETERSON.

Generated on 2024-07-25 20:42 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

(c) "port" means a place where ships may discharge or load cargo.

3. This Act applies to ships carrying goods from any port in Canada to any other port in Canada, or from any port in Canada to any port outside of Canada, and to goods carried by such ships, or received to be carried by such ships.

4. Where any bill of lading or similar document of title to goods contains any clause, covenant or agreement whereby:

(a) the owner, charterer, master or agent of any ship, or the ship itself, is relieved from liability for loss or damage to goods arising from negligence, fault, or failure in the proper loading, stowage, custody, care or delivery of goods received by them or any of them to be carried in or by the ship; or,

(b) any obligations of the owner or charterer of any ship to exercise due diligence to properly man, equip, and supply the ship, and make and keep the ship seaworthy, and make and keep the ship's hold, refrigerating, and cool chambers, and all other parts of the ship in which goods are carried, fit and safe for their reception, carriage and preservation, are in any wise lessened, weakened or avoided; or,

(c) the obligations of the master, officers, agents, or servants of any ship to carefully handle and stow goods, and to care for, preserve, and properly deliver them, are in any wise lessened, weakened or avoided;

such clause, covenant or agreement shall be illegal, null and void, and of no effect, unless such clause, covenant or agreement is in accordance with the other provisions of this Act.

5. Every bill of lading, or similar document of title to goods, relating to the carriage of goods from any place in Canada to any place outside of Canada shall contain a clause to the effect that the shipment is subject to all the terms and provisions of, and all the exemptions from liability contained in, this Act; and any stipulation or agreement purporting to oust or lessen the jurisdiction of any court having jurisdiction at the port of loading in Canada in respect of the bill of lading or document, shall be illegal, null and void, and of no effect.

6. If the owner of any ship transporting merchandise or property from any port in Canada exercises due diligence to make the ship in all respects seaworthy and properly manned, equipped and supplied, neither the ship nor the owner, agent or charterer shall become or be held responsible for loss or damage resulting from faults or errors in navigation or in the management of the ship, or from latent defect.

7. The ship, the owner, charterer, agent or master shall not be held liable for loss arising from fire, dangers of the sea or other navigable waters, acts of God or public enemies, or inherent defect, quality or vice of the thing carried, or from insufficiency of package, or seizure under legal process, or for loss resulting from any act or omission of the shipper or owner of the goods, his agent or representative, or from saving or attempting to save life or property at sea, or from any deviation in rendering such service, or other reasonable deviation, or from strikes, or for loss arising without their actual fault or privity or without the fault or neglect of their agents, servants or employes.

8. The ship, the owner, charterer, master or agent shall not be liable for loss or damage to or in connection with goods for a greater amount than $100 per package, unless a higher value is stated in the bill of lading or other shipping document, nor for any loss or damage whatever if the nature or value of such goods has been falsely stated by the shipper, unless such false statement has been made by inadvertence or error. The declaration by the shipper as to the nature and value of the goods shall not be considered as binding or conclusive on the ship, her owner, charterer, master or agent.

9. Every owner, charterer, master or agent of any ship carrying goods, shall on demand issue to the shipper of such goods a bill of lading, showing, among other things, the marks necessary for identification as furnished in writing by the shipper, the number of packages or pieces, or the quantity or the weight, as the case may be, and the apparent order and condition of the goods as delivered to or received by such owner, charterer, master or agent; and such bill of lading shall be prima facie evidence of the receipt of the goods as therein described.

10. In case of wood goods, notwithstanding anything in the charter party, bill of lading, or other shipping document, the owner, charterer, master or agent of the ship, or the ship itself, shall only be bound to deliver to the consignee, the pieces received from the shipper, and shall not be held responsible for deficiency in measurement; and any words inserted in any charter party, bill of lading or other shipping document for the purpose of making the owner, charterer, master or agent of the ship, or the ship itself, liable for deficiency in measurement in such case shall be illegal, null and void and of no effect.

11. When a ship arrives at a port where goods carried by the ship are to be delivered, the owner, charterer, master or agent of the ship shall forthwith give such notice as is customary at the port, to the consignees of goods to be delivered there, that the ship has arrived.

12. Everyone who, being the owner, charterer, master or agent of a ship—

(a) inserts in any bill of lading or similar document of title to goods any clause, covenant or agreement declared by this Act to be illegal; or makes, signs, or executes any bill of lading or similar document of title to goods containing any clause, covenant or agreement declared by this Act to be illegal; without incorporating verbatim, in conspicuous type, in the same bill of lading or similar document of title to goods, section 4 of this Act; or,

(b) refuses to issue to a shipper of goods a bill of lading as provided by this Act; or,

(c) refuses or neglects to give the notice of arrival of the ship required by this Act;

is liable to a fine not exceeding $1,000, with cost of prosecution; and the ship may be libelled therefor in any Admiralty District in Canada within which the ship is found.

2. Such proportion of any penalty imposed under this section as the court deems proper, together with full costs, shall be paid to the person injured, and the balance shall belong to his Majesty for the public uses of Canada.

13. Everyone who knowingly ships goods of an inflammable or explosive nature, or of a dangerous nature, without before shipping the goods making full disclosure in writing of their nature to, and obtaining the permission in writing of, the agent, master or person in charge of the ship, is liable to a fine of $1,000.

14. Goods of an inflammable or explosive nature, or of a dangerous nature, shipped without such permission from the agent, master or person in charge of the ship, may, at any time before delivery, be destroyed or rendered innocuous, by the master or person in charge of the ship, without compensation to the owner, shipper or consignee of the goods; and the person so shipping the goods shall be liable for all damages directly or indirectly arising out of such shipment.

15. This Act shall not apply to any bill of lading or similar document of title to goods made pursuant to a contract entered into before this Act comes into force.

16. This Act shall come into force Sept. 1, 1910.

PERSONAL.

Robert Curr, naval architect, has removed his office to 2511 Elm street N. W., Cleveland, O.

Messrs. Shaw, Warren, Cady & Oakes, of Detroit, announce that the Hon. Claudius B. Grant, late justice of the supreme court of the state of Michigan, has become associated with them in the general practice of law.

Generated on 2024-07-25 20:42 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

OAKUM

GRADES

BEST, U. S. NAVY and NAVY

BOTH

SPUN and UNSPUN

ALSO

PLUMBERS' SPUN OAKUM AND COTTON

Established 1840

OUR MOTTO:

"QUALITY, FIRST, LAST, ALWAYS"

Nearly 70 years of active business made possible only by "Square Dealing"

W. O. DAVEY & SONS

Offices and Factory 164 Laidlaw Avenue

JERSEY CITY, N.J.

"HARD AGROUND"

Records show over 300 wrecks and accidents on the Lakes in 1909, a large percentage of which were due to groundings in fogs and heavy weather.

Practically every case of stranding could have been prevented by the use of a first-class sounding machine.

Boats using

UPSON'S IMPROVED SOUNDING MACHINE

WITH

PATENT DEPTH GAUGE

are insured against delay, as soundings can easily be taken with vessel running at full speed.

Printed matter, giving full information, and showing what is thought of the machine by those who are using it will be sent on request.

THE UPSON-WALTON CO.

CLEVELAND

Geo. L. McCurdy

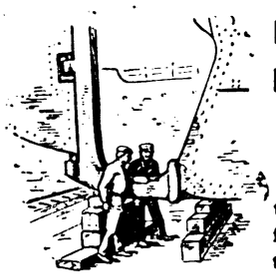
169 Jackson Boulevard

CHICAGO ILLINOIS

INSURANCE

HULLS and CARGOES

DIRECT REPRESENTATIVE OF LEADING AMERICAN AND FOREIGN UNDERWRITERS



BROKEN STERNPOSTS AND RUDDER FRAMES WELDED IN PLACE

Process sanctioned by the British Corporation for the Survey and Registry of Shipping.

The Thermit Process enables you to weld broken sternposts, rudder frames, shafts, etc., without removing them from the vessel. All of our appliances are portable and may be brought to the job. No outside power is required with the exception of a small supply of compressed air.

Thermit is a mixture of finely divided aluminum and iron oxide which burns up and produces liquid steel at a temperature of 5,400° F. This is poured into a mould surrounding the broken sections and the intense heat of the Thermit steel causes it to dissolve the metal with which it comes in contact, amalgamating with it to form a homogeneous mass when cool.

Pamphlet No. 20-E tells all about it. Write for a copy and for "Reactions", the Thermit Quarterly.

Goldschmidt Thermit Co.

90 West Street, New York

432-436 Folsom Street, San Francisco.
103 Richmond Street W., Toronto, Ont.

Generated on 2024-07-25 20:42 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

Accidents of the Month

LAKE navigation during May was attended with a number of accidents, some of them quite serious. The steamer Frank H. Goodyear was sunk in collision with the steamer James B. Wood off Point Aux Barques, Lake Huron, during a dense fog on Monday, May 23. She was struck on the port bow near the bridge and her side broken in towards No. 1 hatch. She filled immediately and sank within a very few seconds, drowning 17 members of her crew. The Goodyear was owned by the Buffalo & Susquehanna Steamship Co., of which Capt. John Mitchell is manager. She was built at the Lorain yard of the American Ship Building Co. in 1902 and was 416 ft. keel, 50 ft. beam and 28 ft. deep. She was insured for nearly her entire value. The Wood returned to Port Huron, where temporary repairs were made upon her and then proceeded on to the head of the lakes.

The steamer Empire City and the steamer Sonoma were in collision near Corsica Shoal, both vessels being sufficiently damaged to go into dry dock. The steamer John B. Ketchum struck on Crib No. 4 in the West Neebish Channel, sinking and blocking it on May 24. It was not until June 3 that she was pulled to one side, enabling downbound boats to pass her. The steamer City of Berlin ran ashore in a heavy fog on Lake Superior and could not be released until 600 tons of her cargo of coal had been lightered. A number of accidents were due to derangement of machinery.

DATE.	NAME OF VESSEL.	NATURE OF ACCIDENT.	PLACE.
May 10	Str. Anna C. Minch	Struck; bottom damaged; leaked badly	Gravelly Shoal, Green Bay.
May 10	Str. Wasaga	Struck; released after lightering 10,000 bushels of grain; uninjured	Stag Island, St. Clair River.
May 11	Str. P. D. Armour	Ran ashore in fog; towed to Waukegan, Ill.	Off Zion City, Lake Michigan.
	Str. Wiehe	Broke her stern pipe	
May 15	Str. North Wind	Punctured hole in cover of cylinder head; towed to Sault Ste. Marie, where she was repaired	Near Outer Island, Lake Superior.
May 16	Str. Pere Marquette III	Collided with Broadway bridge; 40 ft. of side railing of bridge knocked away	Duluth, Minn.
May 17	Str. Faustin	Foundered in 30 ft. of water; heavy seas put her fires out; raised May 20 and taken to Stoney Island to unload	Near Bar Pt. Lightship, Det't River.
May 17	Str. Andrew Carnegie	Hit str. Wisconsin, damaging a few plates	Riverbed, Cleveland, O.
May 17	Tug Circle	Ran on rocks; released on 20th; hole 2 ft. square in her bow; taken to Eagle River for repairs	Off Eagle Harbor, Lake Superior.
	Str. Midland Prince	Broke her shaft between high and intermediate cylinders; repaired at Detroit	Near Pt. Huron, St. Clair River.
May 21	Str. Binghamton	Stranded in fog; No. 2 tank badly punctured, causing her to fill with water; released on 24th, after lightering 600 tons; in bad shape	S. Manitou Island, Lake Mich'n.
May 21	Str. Empire City	Collided with str. Sonoma in heavy fog; bow badly smashed in; temporarily repaired at Detroit; docked at Cleveland; ten damaged plates	Lake Huron, near Corsica Shoal.
May 21	Str. Sonoma	Collided with str. Empire City in heavy fog; several plates damaged on port bow; docked at Toledo	Lake Huron, near Corsica Shoal.
May 21	Str. John B. Ketchum	Struck starboard bow on Crib No. 4, current swinging her across West Neebish Channel, blocking it; vessels not able to pass down channel until June 3	Sault River.
May 21	Str. Rosemount	Ran ashore in fog; released without serious damage	Lake Ontario, nr. Port Colborne.
May 21	Bge. Hamilton	In tow of str. Rosemount; ran ashore; released without serious damage	Lake Ontario, nr. Port Colborne.
May 23	Str. Jex	Ran on rocks; released on 28th; leaked badly; temporarily repaired at Detroit	Off Thunder Bay Island.
May 23	Bge. Shawnee	Ran on rocks; released on 26th	Off Thunder Bay Island, Lake Huron.
May 23	Str. Frank H. Goodyear	Collided with str. James B. Wood in dense fog, sinking almost immediately; 23 members of crew drowned. Was struck on port bow near bridge; side broke in toward No. 1 hatch	Off Point Aux Barques, Lake Huron.
May 23	Str. James B. Wood	Collided with str. Frank H. Goodyear in heavy fog; badly damaged; temporarily repaired at Port Huron	Off Point Aux Barques, Lake Huron.
May 24	Str. Major	Became disabled; lost wheel, broke rudder and split stern-post; towed to Milwaukee for repairs	Off Plumb Island.
May 28	Str. City of Berlin	Ran ashore in heavy fog; cargo hold full of water; released June 3, after lightering 600 tons of coal; docked at Superior June 7	Split Rock, Lake Superior.
May 28	Bge. Aurora	In tow of str. City of Berlin; ran ashore also; released June 1	Split Rock, Lake Superior.
May 30	Str. E. N. Saunders	Stranded; released June 2 and docked at Superior; 17 plates damaged and stern post badly twisted	Keweenaw Pt., Lake Superior.
June 2	Str. Senator Derbyshire	Sprang leak in her bow; repaired at Lorain	Stribling's Pt.
June 3	Str. Midland King	Ran aground; lightered cargo	Entrance to So. Chicago harbor.
June 5	Str. Empire City	Collided with str. Thomas Maytham; only slightly damaged	Entrance to So. Chicago harbor.
June 5	Str. Thomas Maytham	Collided with str. Empire City; three plates damaged	Corsica Shoal, Lake Huron.
June 6	Str. Strathcona	Grounded; released after lightering 200 tons	

FISHING STEAMER FOR CASE FISH CO.

Robert Curr, naval architect, is building a little steel fishing steamer for the Case Fish Co., of Cleveland, to be 70 ft. over all, 63 ft. 6 in. on water line, 16 ft. beam and 7 ft. 9 in. deep. The engine will be high pressure 12 by 14 in., supplied with steam from a Scotch boiler 5 ft. 6 in. by 10 ft. allowed 150 lb. pressure. Delivery is promised for September.

Wilcox, Peck & Hughes, insurance agents, have removed from 1008 Rockefeller building, Cleveland, to 1015-1019 in the same building.

The circuit court of Michigan has held that a sailor who has signed articles for a round trip and leaves the vessel before it has completed the trip, loses the wages that he had earned up to the time that he left. The case was that of Wilbur Smith, who shipped as a seaman on the steamer J. S. Dunham, at Conneaut, in September, 1909, signing articles for a round trip to Escanaba. He left the boat at Escanaba and assigned his wages to Clyde Hayden, who brought suit in the justice court at Escanaba to recover. The justice held in favor of Smith, but the circuit court set this verdict aside. The sum of money involved in this suit was small, only $9, but the principle is important. Vessel masters have been put to much trouble by members of the crew quitting at upper lake ports and leaving the vessel short-handed.

Col. Townsend, government engineer with headquarters at Detroit, says that he expects to open the Livingstone Channel in the lower Detroit river to navigation in September, 1911. It will be used exclusively by downbound boats and will doubtless lessen the number of collisions on the lakes, as a fair percentage of them take place in the congested water in that locality.

Harry L. Bryant has been appointed soliciting freight and passenger agent for the Detroit & Cleveland Navigation Co., at Buffalo.

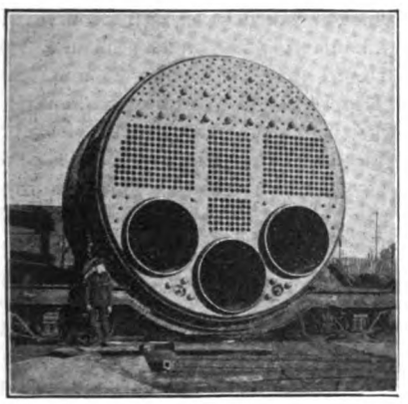
Generated on 2024-07-25 20:42 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

SHIP CHANDLERY - ENGINEERS' SUPPLIES

LAUNCH DELIVERY SERVICE

The Erie Mill & Marine Supply Co.

11-13 Main Street. Buffalo. N. Y.



The Marine Boiler Works Co.

Manufacturers of

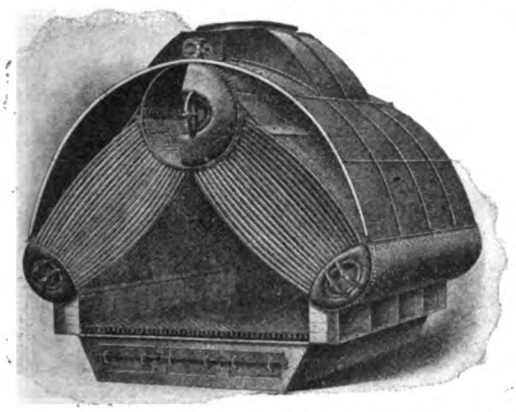
High Grade Marine and Stationary Boilers of all types, Stacks, Tanks, Plate and Steel Work of every description. Repair work attended to promptly day or night.

ESTIMATES FURNISHED PROMPTLY ON REQUEST

LONG DISTANCE PHONES
East 45

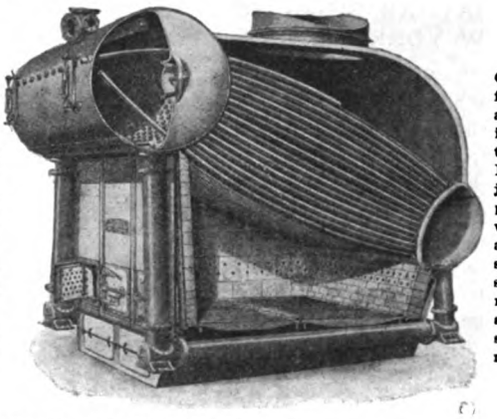
Toledo, Ohio

MOSHER WATER TUBE BOILERS



TYPE A

Over 100,000 H.P. in use in United States, Russian, Mexican and Brazilian Navies, Commercial Vessels and Fast Yachts. Any tube can be replaced without disturbing any other tube. Forty tubes can be removed through one hand hole. Curvature of tubes just sufficient to avoid expansion troubles and not interfere with circulation.

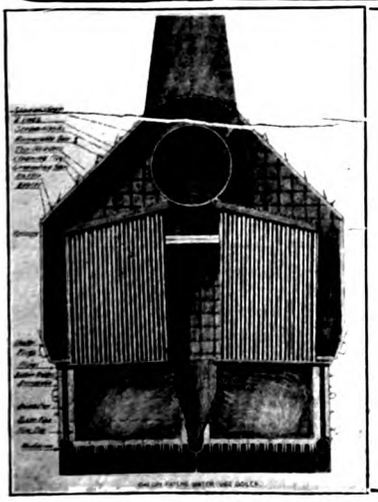


TYPE B

Greatest facility for repairs and also for cleaning interior and exterior of tubes. No screwed joints. No cast parts. All wrought material. Largest grate surface for floor space. Lightest, most compact and easiest steaming boiler made.

MOSHER WATER TUBE BOILER CO.

WORKS: OSSINING, N. Y. **OFFICE: 30 CHURCH ST., NEW YORK**



Ballin Water Tube Boiler Company

Portland, Oregon

The only truly SECTIONAL BOILER with VERTICAL TUBES
All Generating Tubes and Headers seamless drawn steel tubes

PERFECT CIRCULATION --- NO SEDIMENTS --- DRY STEAM

SIMPLICITY OF CONSTRUCTION
Terminals of tubes expanded in place
Every Tube or Header can be Inspected and Cleaned
INSIDE and OUTSIDE

Every Tube and Section can be taken out and replaced without disturbing any other Tube or Section

Perfect Combustion --- Light Weight --- Greatest Efficiency

CATALOGUE AND PRIGES ON APPLICATION

Generated on 2024-07-25 20:43 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

SUMMARY OF NAVAL CONSTRUCTION.

The monthly summary of naval construction, issued by the bureau of construction and repair, shows the following progress upon vessels:

Name of Vessel—	Building at—	—1910— Per Cent of Completion. Apr. 1.	May 1.
BATTLESHIPS.			
Florida	Navy Yard, New York	59.0	63.4
Utah	New York S. B. Co	68.5	72.0
Wyoming	Wm. Cramp & Sons	15.7	19.0
Arkansas	New York S. B. Co	19.5	24.0
TORPEDO BOAT DESTROYERS.			
Paulding	Bath Iron Works	81.1	86.8
Drayton	Bath Iron Works	73.6	77.6
Roe	Newport News S. B. Co	81.4	85.1
Terry	Newport News S. B. Co	79.9	82.4
Perkins	Fore River S. B. Co	67.7	72.9
Sterrett	Fore River S. B. Co	66.9	71.4
McCall	New York S. B. Co	56.8	66.9
Burrows	New York S. B. Co	56.2	65.6
Warrington	Wm. Cramp & Sons	65.5	67.5
Mayrant	Wm. Cramp & Sons	69.7	72.6
Monaghan	Newport News S. B. Co	17.7	18.3
Trippe	Bath Iron Works	25.3	31.9
Walke	Fore River S. B. Co	19.2	27.5
Ammen	New York S. B. Co	19.4	30.9
Patterson	Wm. Cramp & Sons	12.1	17.8
SUBMARINE TORPEDO BOATS.			
Salmon	Fore River S. B. Co	91.7	92.7
Carp	Union Iron Works	45.7	47.6
Barracuda	Union Iron Works	46.1	47.6
Pickerel	The Moran Co.	43.3	46.4
Skate	The Moran Co.	43.3	46.1
Skipjack	Fore River S. B. Co	35.3	37.6
Sturgeon	Fore River S. B. Co	34.7	36.7
Thrasher	Wm. Cramp & Sons	4.3	4.7
Tuna	Newport News S. B. Co	21.2	22.2
Seal	Newport News S. B. Co	47.1	48.9
COLLIERS.			
Cyclops	Wm. Cramp & Sons	63.1	70.6
No. 8	Maryland Steel Co	18.24	23.3

MORE LEVIATHAN SHIPS FOR THE NEW YORK TRADE.

Satisfactory progress is being made with the two White Star liners Olympic and Titanic, which are under construction at Belfast, and the launching date of the former has been fixed for Oct. 20. The vessel is already more than half plated and riveted, whilst the engine and boiler castings are also well advanced. In point of size, the two represent something like 120,000 tons displacement — and luxurious equipment, these boats are said to surpass anything afloat, and their advent on the Atlantic is eagerly anticipated both here and in the United States. One of the upper decks is to be completely enclosed, and will serve as a ballroom or skating rink, and in addition there is to be a swimming bath on each liner large enough to permit of diving.

The Cunard Co. have also decided to build another 18,000-ton intermediate steamer similar to the Franconia, now building at Wallsend-on-Tyne, and at the annual meeting of the Cunard shareholders, on April 21, the Cunard chairman made it known for the first time that the directors were at present considering plans for a large passenger and mail steamer of a design that can take her place in the express service with the Lusitania and Mauretania.

The Hamburg-American Line has also placed with Messrs. Harland & Wolff, Belfast, so it is reported, for a boat which, while designed to exceed the present express Cunarders in size, is not intended to compete with them in speed. The liner is to cost about $6,250,000, and will have accommodation for 4,800 passengers.

The North German Lloyd also contemplate the construction of a sister ship to the George Washington, of 27,000 tons gross, in Germany.

RECORD BREAKING MOTOR-BOAT.

The international race or Coupe des Nations, which is regarded as by far the most important international power boat racing event of the year, was decided at the Monaco meeting, Monte Carlo, on Tuesday, April 12, the coveted prize being won with the utmost ease by the Duke of Westminster's racing launch, Ursula, which covered the course of 100 kilometres (62½ miles) in the world's record time of 1 hour, 26 min., 59 sec. The Duke of Westminster himself was at the helm, and his wonderful performance was cheered to the echo by an enormous crowd of spectators. By again winning the Coupe des Nations, the Ursula has once more proved herself to be the fastest power boat in Europe. The Ursula was built at Cowes, Isle of Wight, in 1909, for the Duke of Westminster by the Wolseley Tool & Motor Car Co., Ltd., and was specially designed to race for this international prize. Last year she also won the prize with great ease, and making a world's record for speed. She is 49 ft. 6 in. long, 6 ft. 6 in. beam, a total displacement of less than 5½ tons, and is engined with two 400-horsepower 12-cylinder Wolseley motors. During last summer she was constantly used by the Duke of Westminster for pleasure purposes, and logged more than 2,000 miles.

POWER BOAT URSULA IN THE HARBOR OF MONACO.

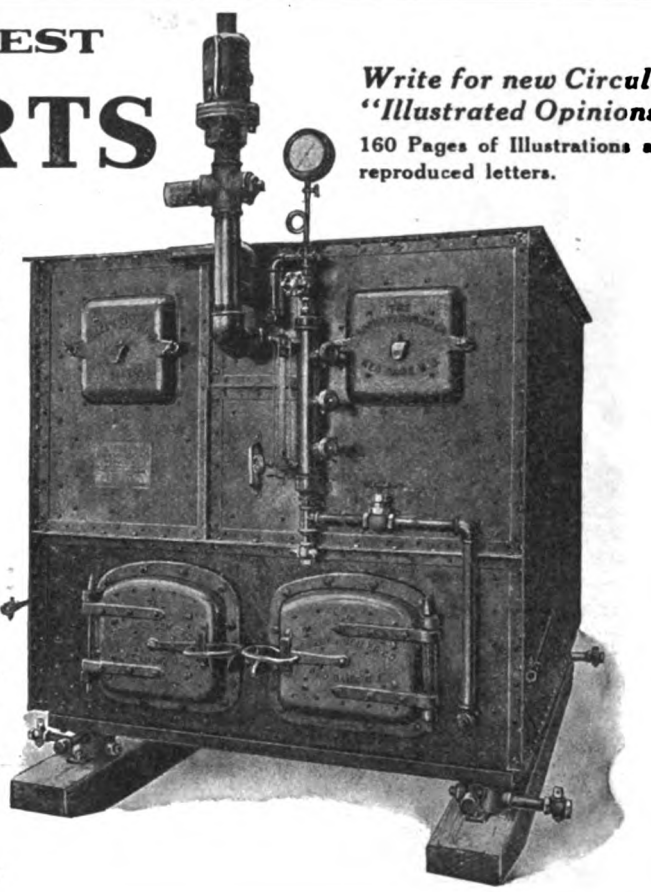
Generated on 2024-07-25 20:43 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

FROM EAST TO WEST

THE ROBERTS

Proves Best for High-Class Marine Service

Write for new Circular "Illustrated Opinions"
160 Pages of Illustrations and reproduced letters.

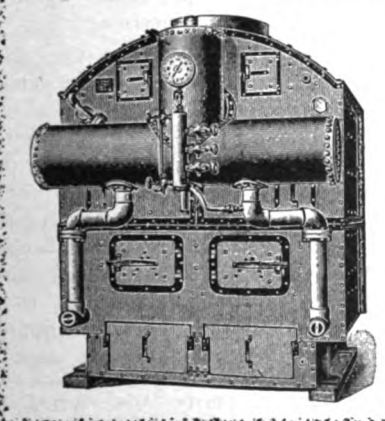


SOLD AT

Portland, Me. Jacksonville, Fla.
Chicago, Ill. Seattle, Wash.
San Francisco, Cal.

The Roberts Safety Water Tube Boiler Co.

112—114 CHESTNUT STREET
Phone, 49 Red Bank RED BANK, N. J.



ALMY SECTIONAL WATER-TUBE BOILERS

Embrace the following essential features:

Simple design, perfect circulation, large combustion chamber; greatest heating surface possible in fire box; latest and most efficient method of separating steam from water; water in sufficient quantity to prevent excessive fluctuation; mud-drum to receive precipitation; expansion provided for every part; accessibility of all parts for cleaning and repairs; small space required; strength, weight and durability.

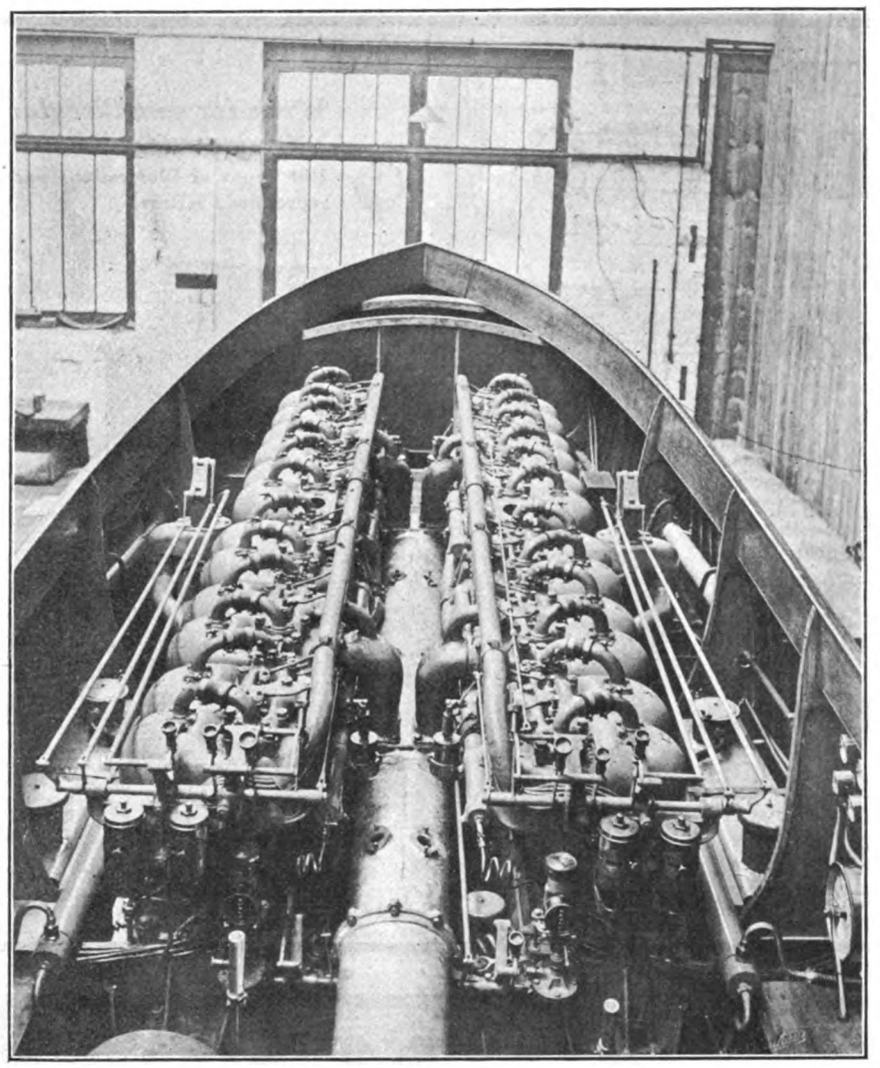
350 Steam Vessels now using Almy Boilers, testify of their excellence.

Almy Water-Tube Boiler Co. PROVIDENCE R.I., U.S.A.

Generated on 2024-07-25 20:43 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

Original from NEW YORK PUBLIC LIBRARY



POWER BOAT URSULA WITH DECK REMOVED.

NIGHT SCHOOL FOR APPRENTICES.

A night school has been recently opened by the Phoenix Enginering Co., Tacoma, Wash., for the benefit of its apprentices and other employes who care to avail themselves of the opportunity.

The Phoenix Engineering Co. operates machine shops, forge shops and foundries, specializing on ship construction and repairs and on the manufacture of marine engines and boilers. The courses of study are designed to fit in with the particular work in which the company is engaged, the aim being to build up a corps of skilled workmen who will have a personal interest in the business.

The subjects covered at the night school are mechanical drawing, geometry, arithmetic and lectures on shop practice. As soon as they are sufficiently advanced the apprentices are given practical work in the drawing room, while their days, of course, are spent in the shop. Sessions are held twice a week so that the course will not be a burden on anyone's time. The instruction is given by the department heads. The school work is carried on without expense to the apprentices.

NEW WIRE ROPE TABLES.

The American Steel & Wire Co. has just issued a new set of tables of strengths of wire rope. The methods employed in measuring breakage strengths of different forms of wire rope have heretofore been based upon the individual wires in the rope and the tables of strengths in common use have been constructed accordingly. The new tables are based on the average of the different sizes and kinds of wire rope as obtained by actual tests on a large number of specimens, and the new tables now represent the standard adopted by all American makers of wire rope. The new tables give a strength approximately 10 per cent lower than that hitherto accepted, the difference being accounted for by the fact that a number of wires when twisted into a rope do not all sustain the same proportion of the load, due partly to indirect pull and partly to the fact that all wires are not subject to equal stress at one time.

TRADE NOTES.

The Alberger Condenser Co. and Alberger Pump Co. announce the removal of their office to the West street building, 140 Cedar street, New York.

The Pennsylvania Steel Co. and Maryland Steel Co. have located their Chicago offices at No. 1005-07 McCormick building, 193 Michigan boulevard.

The Upson-Walton Co. announce that manufacturers have advanced manila rope one-half cent per pound, which has necessitated a change in list prices. The company is sending out new slips to be pasted in its 1909 catalog.

The Upson-Walton Co. has leased, for a period of years, a cordage plant in Newburyport, Mass., which it will operate under the name of the Lyman Cordage Co. The factory has been put into first-class condition and equipped with the best machinery and is now turning out rope under Upson-Walton Co.'s personal supervision.

The Standard Chain Co., Pittsburg, Pa., has just issued a new catalog, descriptive of the many styles of chain manufactured at its several plants. The company represents that it has the most modern chain plants in the world, that its plants are conveniently located for serving customers, both east and west, and can guarantee prompt shipments from stock. It is prepared to furnish welded chains of every description from the smallest to the largest sizes.

SEALED PROPOSALS WILL BE RECEIVED at the office of the Light-House Board, Washington, D. C., until 2 o'clock p. m., June 28, 1910, and then opened, for furnishing the materials and labor of all kinds necessary for the construction, equipment and delivery of the twin-screw, wood, gasoline-propelled light-house tender Palmetto, in accordance with specifications, copies of which, with blank proposals and other information, may be had upon application to the Light-House Board, Washington, D. C., or at the office of the Light-House Engineer, Charleston, S. C.

SEALED PROPOSALS WILL BE RECEIVED at the office of the Light-House Board, Washington, D. C., until 2 o'clock p. m., June 28, 1910, and then opened, for furnishing the materials and labor of all kinds necessary for the construction, equipment and delivery of the twin-screw, steel, steam light-house tender Aster, in accordance with specifications, copies of which, with blank proposals and other information, may be had upon application to the Light-House Board, Washington, D. C., or at the office of the Light-House Inspector, Portland, Maine.

Generated on 2024-07-25 20:43 GMT / https://hdl.handle.net/2027/nyp.33433109936173
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY